

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump
Pump designation : PES4P110B720RS3383
EP type number : 0 412 014 701

Governor
Governor design. : RSV300...1100P1A667
Governor no. : 0 421 833 582

Cust. part No. : 9880216

Customer-spec. information

Customer : LIEBHERR
Motor : D 924 TI-E A2
Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 207.0
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

AC1

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 4- 2- 1- 3

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 13.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 203.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 24.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.5

Spread

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 880

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 203.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.85
Rated speed rpm : 920
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 980
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

rack travel mm : 4.00
Rated speed rpm : 1000
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 2.80
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 500
rack travel mm : 4.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 595
Tolerance 1/min : + 50

TORQUE CONTROL

Rated speed rpm : 880
rack travel mm : 13.85
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 13.90
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : 13.90
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 550
Pressure hPa : 1500
rack travel mm : 13.85
Tolerance mm : + 0.10

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 11.25
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 830
rack travel mm : 13.20
Tolerance mm : + 0.05

Pressure hPa : 750
rack travel mm : 12.10
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 225.0
Tolerance
cm³/1000 strokes : + 3.0

A03

Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure

hPa : 1500
Rated speed rpm : 700
rack travel mm : 13.90
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 214.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 500

Rack travel in mm : 4.60
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.5
Speed
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
ca3/1000s. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 617

Injection pump
Pump designation : PE6P130A320RS7282
EP type number : 0 412 636 825

Governor
Governor design. : RQV300...900PA1059
Governor no. : 0 421 814 049

Cust. part No. : 865851-P08 V.09.97

Customer-spec. information
Customer : PENTA
Motor : TAD 1230 P

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.30
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.55
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 349.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 928
guide sleeve
travel mm : 7.72
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.81
Tolerance mm : \pm 0.25

Rated speed rpm : 650
guide sleeve
travel mm : 5.16
Tolerance mm : \pm 0.25

Rated speed rpm : 315
guide sleeve
travel mm : 1.98
Tolerance mm : \pm 0.25

Rated speed rpm : 365
guide sleeve
travel mm : 2.54
Tolerance mm : \pm 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 3.17
Tolerance mm : \pm 0.25

Rated speed rpm : 1210
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 980

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 2000
Del. quantity
cm³/1000 strokes : 349.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 5.0
Spread
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : \pm 4.0

control lever
position degree : 117.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.50

Rated speed rpm : 915

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1000

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1100

LOW IDLE

control lever

position degree : 74.0

tolerance degree : + 4.0

control lever

position degree : 18.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 300

rack travel mm : 4.00

Tolerance mm : + 0.10

rack travel mm : > 5.60

Rated speed rpm : 200

Rated speed rpm : 365

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 11.55

Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 2000

rack travel mm : 11.55

Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : -

A07

rack travel mm : 8.30

Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1420

rack travel mm : 3.00

Tolerance mm : + 0.20

Pressure hPa : 640

rack travel mm : 0.25

Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 700

Del. quantity

cm³/1000 strokes : 230.0

Tolerance

cm³/1000 strokes : + 1.5

Check tolerance

cm³/1000S. : + 5.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.00

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 23.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Speed

Tolerance

cm³/1000 strokes : 7.0

Check tolerance

cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 700

Injection pump
Pump designation : PE6P120A320LS7917
EP type number : 0 412 626 972

Governor
Governor design. : RQV350...1050PA1366
Governor no. : 0 421 814 204

Cust. part No. : 0270744002

Customer spec. information
Customer : MB-NFZ
Motor : OM401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. L/h : 120
Tolerance L/h : + 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.9
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 218.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1106
guide sleeve
travel mm : 8.02
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.48
Tolerance mm : \pm 0.20

Rated speed rpm : 900
guide sleeve
travel mm : 5.69
Tolerance mm : \pm 0.25

A09

Rated speed rpm : 570
guide sleeve
travel mm : 3.57
Tolerance mm : \pm 0.25

Rated speed rpm : 1204
guide sleeve
travel mm : 10.00
Tolerance mm : \pm 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1160

Rack travel in mm : 13.40
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.40
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1185

Tolerance 1/min : + 15
rack travel mm : 0.75
Tolerance mm : + 0.75
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
CRT mm min. : > 7.90

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : + 0.10

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.40
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 970
rack travel mm : 14.60
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Pressure hPa : 300
rack travel mm : 0.75
Tolerance mm : + 0.05

Pressure hPa : 650
rack travel mm : 3.35
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 14.60
Tolerance mm : + 0.05

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

REDUCED QUANTITY

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 163.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.80
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 785

Injection pump
Pump designation : PE6P120A320LS7869
EP type number : 0 412 626 887

Governor
Governor design. : RQV300...1050PA1078K
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer spec. information

Customer : LIEBHERR
Motor : D 9406 TI
Power kW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 165
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 290.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.38
Tolerance mm : ± 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.69
Tolerance mm : ± 0.25

Rated speed rpm : 746
guide sleeve
travel mm : 6.20
Tolerance mm : ± 0.25

Rated speed rpm : 353
guide sleeve
travel mm : 2.45
Tolerance mm : ± 0.25

Rated speed rpm : 403
guide sleeve
travel mm : 3.18
Tolerance mm : ± 0.25

Rated speed rpm : 450
guide sleeve
travel mm : 3.66
Tolerance mm : ± 0.25

Rated speed rpm : 1320
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1185

Rack travel in mm : 10.80
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1550
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 11.30
Rated speed rpm : 1110
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1300

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : + 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 10.10
Tolerance mm : + 0.10

Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : + 0.10

Rated speed rpm : 950
rack travel mm : 12.25
Tolerance mm : + 0.10

Rated speed rpm : 600
rack travel mm : 10.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1550
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 1050
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 670
rack travel mm : 11.00
Tolerance mm : + 0.05

Pressure hPa : 600
rack travel mm : 10.50
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 240

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1550
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : 1550
Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550

Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 10.00
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 20.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 785A

Injection pump
Pump designation : PE6P120A320LS7869
EP type number : 0 412 626 887

Governor
Governor design. : RQV300...1050PA1078K
Governor no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information
Customer : LIEBHERR
Motor : D 9406 TI
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 165
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 290.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117

guide sleeve
travel mm : 10.38

Tolerance mm : + 0.25

Rated speed rpm : 300

guide sleeve
travel mm : 1.69

Tolerance mm : + 0.25

Rated speed rpm : 746

guide sleeve
travel mm : 6.20

Tolerance mm : + 0.25

Rated speed rpm : 353

guide sleeve
travel mm : 2.45

Tolerance mm : + 0.25

Rated speed rpm : 403

guide sleeve
travel mm : 3.18

Tolerance mm : + 0.25

Rated speed rpm : 450

guide sleeve
travel mm : 3.66

Tolerance mm : + 0.25

Rated speed rpm : 1320

guide sleeve
travel mm : 13.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1185

Rack travel in mm : 11.00

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1550

Del. quantity
cm³/1000 strokes : 290.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 121.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.00

Rated speed rpm : 1105

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1200

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1300

Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 6.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.30
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.10
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.25
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 10.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1550
rack travel mm : 12.30
Tolerance mm : \pm 0.05

Rated speed rpm : 550
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1050
Pressure hPa : 670
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Pressure hPa : 600
rack travel mm : 10.50
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1550
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1550
Rated speed rpm : 800
rack travel mm : 11.65
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550

Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 10.00
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 200.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 20.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97
Test oil : ISO 4113

Combination No. : 0 402 648 702

Injection pump
Pump designation : PE8P120A320LS7915
EP type number : 0 412 628 929

Governor
Governor design. : RQV250...1150PA1346
Governor no. : 0 421 814 193

Cust. part No. :

Customer spec. information

Customer : DHI
Motor : DV15T
Power KW : 272.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

A20

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 16.00
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.80
Tolerance mm : ± 0.05

| | |
|---------------------------------|-------|
| Del. quantity | |
| cm ³ /1000 strokes : | 222.0 |
| <hr/> | |
| Tolerance | |
| cm ³ /1000 strokes : | + 1.0 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. : | + 4.0 |
| <hr/> | |
| Speed | |
| <hr/> | |
| Tolerance | |
| cm ³ /1000 strokes : | 7.0 |
| <hr/> | |
| Check tolerance | |
| cm ³ /1000S. : | 10.0 |
| <hr/> | |

| | |
|---------------------------------|--------|
| Rated speed rpm : | 250 |
| <hr/> | |
| Rack travel in mm : | 5.60 |
| Tolerance mm : | + 0.10 |
| Del. quantity | |
| cm ³ /1000 strokes : | 20.0 |
| Tolerance | |
| cm ³ /1000 strokes : | + 3.0 |
| Check tolerance | |
| cm ³ /1000S. : | + 6.0 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes : | 5.0 |
| Check tolerance | |
| cm ³ /1000S. : | 8.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-------------------|--------|
| Rated speed rpm : | 1207 |
| guide sleeve | |
| travel mm : | 8.92 |
| Tolerance mm : | + 0.15 |
| <hr/> | |
| Rated speed rpm : | 250 |
| guide sleeve | |
| travel mm : | 1.31 |
| Tolerance mm : | + 0.20 |
| <hr/> | |
| Rated speed rpm : | 1185 |
| guide sleeve | |
| travel mm : | 8.60 |
| Tolerance mm : | + 0.25 |
| <hr/> | |
| Rated speed rpm : | 640 |

| | |
|-------------------|--------|
| guide sleeve | |
| travel mm : | 4.65 |
| Tolerance mm : | + 0.25 |
| <hr/> | |
| Rated speed rpm : | 1390 |
| guide sleeve | |
| travel mm : | 11.50 |
| Tolerance mm : | + 0.50 |

GUIDE SLEEVE POSITION

| | |
|---------------------|--------|
| control lever | |
| position degree : | - 1 |
| Rated speed rpm : | 1227 |
| <hr/> | |
| Rack travel in mm : | 12.80 |
| Tolerance mm : | + 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|---------------------------------|-------|
| Rated speed rpm : | 1150 |
| Aneroid pressure | |
| hPa : | - |
| Del. quantity | |
| cm ³ /1000 strokes : | 222.0 |
| Tolerance | |
| cm ³ /1000 strokes : | + 1.0 |
| Check tolerance | |
| cm ³ /1000S. : | + 4.0 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes : | 7.0 |
| Check tolerance | |
| cm ³ /1000S. : | 10.0 |

CONTROL LEVER

| | |
|--------------------|-------|
| control lever | |
| position degree : | 58.0 |
| tolerance degree : | + 4.0 |
| <hr/> | |
| control lever | |
| position degree : | 122.0 |
| tolerance degree : | + 4.0 |

| | |
|-------------------|-------|
| RATED SPEED | |
| rack travel mm : | 12.80 |
| Rated speed rpm : | 1195 |
| Tolerance 1/min : | + 5 |

| | |
|-------------------|------|
| rack travel mm : | 4.00 |
| Rated speed rpm : | 1295 |
| Tolerance 1/min : | + 15 |
| <hr/> | |
| rack travel mm : | 0.50 |

Tolerance mm : \pm 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

control lever
position degree : 21.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : $>$ 7.30

Testing:

Rated speed rpm : 250
rack travel mm : 5.60
Tolerance mm : \pm 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 13.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350
rack travel mm : 10.00
Tolerance mm : \pm 0.20

Pressure hPa : 735
rack travel mm : 12.10
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 165
Rated speed rpm : $<$ 190

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 210

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 241.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 193.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.10.97
Test oil : ISO 4113
Combination No. : 0 402 648 919
Injection pump
Pump designation : PE6P120A320LS7843
EP type number : 0 412 628 859
Governor
Governor design. : RGV350...1050PA842
 : -8
Governor no. : 0 421 813 952

Cust. part No. : 022 074 0102

Customer spec. information
Customer : MB-NFZ
Motor : OM442 LA
Power kW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067
Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8-7-2-6-3
 : -5-4-1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 14.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 230.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.80
Tolerance mm : \pm 0.30

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1270
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

Rated speed rpm : 350
guide sleeve
travel mm : 1.00
Tolerance mm : \pm 0.20

Rated speed rpm : 510
guide sleeve
travel mm : 3.85
Tolerance mm : \pm 0.25

Rated speed rpm : 1100
guide sleeve
travel mm : 8.10
Tolerance mm : \pm 0.30

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1125

Rack travel in mm : 17.25
Tolerance mm : \pm 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.50
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1175
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : $>$ 7.40

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : \pm 0.30

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 14.60
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 14.60
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 14.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1250
rack travel mm : 0.20
Tolerance mm : \pm 0.10

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 1000

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 400
rack travel mm : -3.50
Tolerance mm : \pm 0.10

Pressure hPa : 550

rack travel mm : -2.20
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 230.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 800
rack travel mm : 14.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 238.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 137.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 20.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.80
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

Note remarks

Edition : 16.07.97
Test oil : ISO 4113

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Cust. part No. : 022 074 0202

Customer : MB-NFZ
Motor : OM442 LA
Power KW : 370.0

Inlet Line : 3.1

Overflow valve : 1 417 413 025

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Opening pressure : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

```
x inside diameter : 2.5
x length mm      : 1000
```

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

Test pressure bar : 26.0
Tolerance bar : + 1.0

```
Prestroke mm      :      5.05
Tolerance mm      : + 0.05
Check
tolerance mm      : + 0.10
```

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : + 0.50
Check
tolerance *NW : + 0.75

Start of delivery mark

Barrel no. : 8

Rack travel in mm : 14.30
Tolerance mm : ± 0.10

Rated speed rpm : 600

Rack travel in mm : 14.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 258.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1108
guide sleeve
travel mm : 8.05
Tolerance mm : \pm 0.25

Rated speed rpm : 350
guide sleeve
travel mm : 1.55
Tolerance mm : \pm 0.25

Rated speed rpm : 570
guide sleeve
travel mm : 3.55

B01

Tolerance mm : \pm 0.25

Rated speed rpm : 900
guide sleeve
travel mm : 5.65
Tolerance mm : \pm 0.25

Rated speed rpm : 1204
guide sleeve
travel mm : 10.05
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1125

Rack travel in mm : 17.25
Tolerance mm : \pm 0.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1100

Del. quantity
cm³/1000 strokes : 258.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 14.30
Rated speed rpm : 1095
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 67.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : $>$ 6.60

Testing:

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 14.30
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
rack travel mm : 15.30
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 15.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

2-stage LDA setting

Rated speed rpm : 600
Pressure hPa : 1100

MEASUREMENT

Pressure hPa : 290
rack travel mm : -5.50
Tolerance mm : \pm 0.05

Pressure hPa : 780
rack travel mm : -1.30
Tolerance mm : \pm 0.10

802

Pressure hPa : 1300
rack travel mm : 0.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 270

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1800
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 272.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.5

Aneroid pressure
hPa : 1800
Rated speed rpm : 800
rack travel mm : 15.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 274.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

REDUCED QUANTITY

Aneroid pressure
hPa : 1800
Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 206.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97

Test oil : ISO 4113

Combination No. : 0 402 676 840

Injection pump

Pump designation : PE6P120A320LS7918

EP type number : 0 412 626 971

Governor

Governer design. : RSV550...1050PCA685

Governer no. : 0 421 833 608

Cust. part No. : 0270744202

Customer-spec. information

Customer : MB-NFZ

Motor : OM 441 LA

Power KW : 239.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 150

Tolerance l/h : ± 20.0

Test nozzle holder assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 14.50

Tolerance mm : ± 0.05

| | | |
|--|---|-------|
| Del. quantity cm ³ /1000 strokes | : | 227.0 |
| Tolerance cm ³ /1000 strokes | : | ± 1.0 |
| Check tolerance cm ³ /1000S. | : | ± 4.0 |
| Spread | | |
| Tolerance cm ³ /1000 strokes | : | 5.0 |
| Check tolerance cm ³ /1000S. | : | 9.0 |

| | | |
|--|---|--------|
| Rated speed rpm | : | 550 |
| Rack travel in mm | : | 4.30 |
| Tolerance mm | : | ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : | 19.0 |
| Tolerance cm ³ /1000 strokes | : | ± 3.0 |
| Check tolerance cm ³ /1000S. | : | ± 6.0 |
| Spread | | |
| Tolerance cm ³ /1000 strokes | : | 6.0 |
| Check tolerance cm ³ /1000S. | : | 10.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|---|---|--------|
| control lever position degree | : | - 3 |
| Rated speed rpm | : | 800 |
| Rack travel in mm | : | 0.50 |
| Tolerance mm | : | ± 0.20 |
| governor spring pre-tension click setting x | : | 2.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1030 |
|-----------------|---|------|

BQ5

| | | |
|--|---|-------|
| Aneroid pressure hPa | : | - |
| Del. quantity cm ³ /1000 strokes | : | 227.0 |
| Tolerance cm ³ /1000 strokes | : | ± 1.0 |
| Check tolerance cm ³ /1000S. | : | ± 4.0 |
| Spread | | |
| Tolerance cm ³ /1000 strokes | : | 5.0 |
| Check tolerance cm ³ /1000S. | : | 9.0 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 88.0 |
| tolerance degree | : | ± 4.0 |

ASSEMBLY GOVERNOR SETTING

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 1070 |
| rack travel mm | : | 13.50 |
| Rated speed rpm | : | 1122 |
| Tolerance 1/min | : | ± 4 |
| rack travel mm | : | 4.00 |
| rack travel mm | : | 0.85 |
| Tolerance mm | : | ± 0.55 |
| Rated speed rpm | : | 1300 |

| | | |
|-----------------|---|-------|
| Rated speed rpm | : | 1071 |
| rack travel mm | : | 13.50 |

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1123 |
| Tolerance 1/min | : | ± 4 |
| rack travel mm | : | 4.00 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 0.85 |
| Tolerance mm | : | ± 0.55 |
| Rated speed rpm | : | 1300 |

| | | |
|-----------------|---|-------|
| Rated speed rpm | : | 1072 |
| rack travel mm | : | 13.50 |

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1124 |
| Tolerance 1/min | : | ± 4 |
| rack travel mm | : | 4.00 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 0.85 |
| Tolerance mm | : | ± 0.55 |
| Rated speed rpm | : | 1300 |

Rated speed rpm : 1073
rack travel mm : 13.50

Rated speed rpm : 1125
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1074
rack travel mm : 13.50

Rated speed rpm : 1126
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

rack travel mm : 13.50

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 550
rack travel mm : 4.30
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 565
Tolerance 1/min : + 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030
rack travel mm : 14.50
Tolerance mm : + 0.05

Rated speed rpm : 960
rack travel mm : 14.70
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 15.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 15.20
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.95
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 650
rack travel mm : 13.85
Tolerance mm : + 0.20

Pressure hPa : 450
rack travel mm : 11.75
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
rack travel mm : 15.30
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 159.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 4.30
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.11.97

Test oil : ISO 4113

Combination No. : 0 402 738 800

Injection pump

Pump designation : PE8P130A720/3LS7443

EP type number : 0 412 738 801

Governor

Governor design. : RQV350...900PA1359

Governor no. : 0 421 814 202

Cust. part No. :

Customer spec. information

Customer : FINCANTIERI

Motor : V1708T2-SPE

Power KW : 815.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity

min. l/h : 160

Tolerance l/h : ± 20.0

Test nozzle holder assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1-2-6-3-4-5-7-8

Phasing : 0-45-90-135-180-225

: -270-315

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.80

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 420.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.5

Rated speed rpm : 350

Rack travel in mm : 4.20

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 7.0

Speed

Tolerance
cm³/1000 strokes : 9.5

Check tolerance
cm³/1000S. : 13.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 958
guide sleeve
travel mm : 3.29
Tolerance mm : ± 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 2.31
Tolerance mm : ± 0.20

Rated speed rpm : 690
guide sleeve
travel mm : 5.08
Tolerance mm : ± 0.25

Rated speed rpm : 1160
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1011

Rack travel in mm : 13.80

B09

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 900

Del. quantity
cm³/1000 strokes : 420.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.5

CONTROL LEVER

control lever
position degree : 115.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.80

Rated speed rpm : 945

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1065

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 67.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 350

rack travel mm : 4.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 490
Tolerance 1/min : \pm 30

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 14.85
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 250
rack travel mm : 10.80
Tolerance mm : \pm 0.20

Pressure hPa : 320
rack travel mm : 12.60
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.5

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 7.0
Speed
Tolerance
cm³/1000 strokes : 9.5
Check tolerance
cm³/1000S. : 13.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.97
Test oil : ISO 4113

Combination No. : 0 402 746 636

Injection pump
Pump designation : PES6P120A720RS7445
EP type number : 0 412 726 973

Governor
Governor design. : RQ300/1100PA1360
Governor no. : 0 421 801 824

Cust. part No. : 618.00.08.0048

Customer spec. information
Customer : SNF
Motor : WD618.42
Power kW : 310.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 155
Tolerance L/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.00
Tolerance mm : ± 0.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 274.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 8.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1158
guide sleeve

travel mm : 6.35
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve

travel mm : 1.74
Tolerance mm : + 0.20

Rated speed rpm : 1100
guide sleeve

travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 425
guide sleeve

travel mm : 5.00

Tolerance mm : + 0.10

Rated speed rpm : 500

guide sleeve

travel mm : 6.00

Tolerance mm : + 0.10

Rated speed rpm : 1290

guide sleeve

travel mm : 11.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever

position degree : 109

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1200

Del. quantity

cm³/1000 strokes : 274.0

Tolerance

cm³/1000 strokes : + 1.0

Check tolerance

cm³/1000S. : + 4.0

Spread

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 99.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.80

Rated speed rpm : 1153

Tolerance 1/min : + 8

rack travel mm : 4.00

Rated speed rpm : 1225

Tolerance 1/min : + 15

rack travel mm : 0.70

Tolerance mm : + 0.70

Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 10.00

Testing:

Rated speed rpm : 300
rack travel mm : 8.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 425
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.80
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 14.85
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 14.80
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 700

rack travel mm : 14.10
Tolerance mm : \pm 0.05

Pressure hPa : 375
rack travel mm : 12.40
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 288.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.90
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 8.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000s. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.97
Test oil : ISO 4113

Combination No. : 0 402 746 637

Injection pump
Pump designation : PES6P120A32ORS7449
EP type number : 0 412 726 974

Governor
Governor design. : RQ275/1050PA1372
Governor no. : 0 421 801 830

Cust. part No. :

Customer spec. information
Customer : RENAULT V.I.
Motor : M17R062045 B41
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 320
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -1.45
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.50
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 193.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.80
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 31.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : 109

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 193.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1120

Tolerance 1/min : ± 5

rack travel mm : -12.00

Tolerance mm : ± 0.50

Rated speed rpm : 1350

LOW IDLE

Testing:

Rated speed rpm : 275

rack travel mm : -6.80

Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050

Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1000

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : -2.00

Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320

rack travel mm : -0.85
Tolerance mm : + 0.15

Pressure hPa : 160
rack travel mm : -1.70
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -6.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.97
Test oil : ISO 4113

Combination No. : G 402 746 638

Injection pump
Pump designation : PES6P120A320RS7449
EP type number : 0 412 726 974

Governor
Governor design. : RQ275/1050PA1373
Governor no. : 0 421 801 831

Cust. part No. :

Customer spec. information

Customer : RENAULT V.I.
Motor : MI7R062045 C41
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 220
Tolerance l/h : + 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.70
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

*NW after s.o.d. : -0.95
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 176.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : 109

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : -11.20
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

Testing:

Rated speed rpm : 275
rack travel mm : -6.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600
rack travel mm : 0.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 1.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -1.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 280
rack travel mm : 0.65
Tolerance mm : ± 0.15
Pressure hPa : 160
rack travel mm : -0.15
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195
Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 193.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 149.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -6.10
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.11.97
Test oil : ISO 4113
Combination No. : 0 402 746 639
Injection pump
Pump designation : PES6P120A320RS7359
: -3
EP type number : 0 412 726 975
Governor
Governor design. : RQ275/105GPA1217-2
Governor no. : 0 421 801 832

Cust. part No. : CCEP 5172 66-255

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR062045 J41
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.80
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

*NW after s.o.d. : -0.45
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.40
Tolerance mm : + 0.05

BASIC SETTING

| | |
|--|--------------|
| Rated speed rpm | : 600 |
| Tolerance mm | : ± 0.05 |
| Del. quantity cm ³ /1000 strokes | : 285.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

| | |
|--|--------------|
| Rated speed rpm | : 275 |
| Rack travel in mm | : -6.90 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 27.0 |
| Tolerance cm ³ /1000 strokes | : ± 2.0 |
| Check tolerance cm ³ /1000S. | : ± 5.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|----------------------------------|-------|
| control lever position degree | : 109 |
|----------------------------------|-------|

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 600 |
| Aneroid pressure hPa | : 1000 |
| Del. quantity cm ³ /1000 strokes | : 285.0 |

| | |
|--|-------------|
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

| | |
|-----------------|------------|
| RATED SPEED | |
| rack travel mm | : -1.00 |
| Rated speed rpm | : 1115 |
| Tolerance 1/min | : ± 15 |

| | |
|-----------------|--------------|
| rack travel mm | : -12.90 |
| Tolerance mm | : ± 0.50 |
| Rated speed rpm | : 1350 |

LOW IDLE

Testing:

| | |
|-----------------|--------------|
| Rated speed rpm | : 275 |
| rack travel mm | : -6.90 |
| Tolerance mm | : ± 0.10 |

TORQUE CONTROL

| | |
|-----------------|--------------|
| Rated speed rpm | : 600 |
| Tolerance mm | : ± 0.05 |

| | |
|-----------------|--------------|
| Rated speed rpm | : 1050 |
| Tolerance mm | : ± 0.10 |

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

| | |
|-----------------|--------|
| Rated speed rpm | : 500 |
| Pressure hPa | : 1000 |

| | |
|-----------------|--------------|
| Rated speed rpm | : 500 |
| Pressure hPa | : - |
| rack travel mm | : -2.85 |
| Tolerance mm | : ± 0.20 |

MEASUREMENT

| | |
|-----------------|---------|
| Rated speed rpm | : 500 |
| Pressure hPa | : 520 |
| rack travel mm | : -0.60 |

Tolerance mm : \pm 0.15
Pressure hPa : 240
rack travel mm : -2.20
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 293.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275

B23

Rack travel in mm : -6.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 27.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.11.97
Test oil : ISO 4113

Combination No. : 0 402 746 957

Injection pump
Pump designation : PES6P120A720RS7292
: -1
EP type number : 0 412 726 939

Governor
Governor design. : RGV350...1150PA1074
: -2K
Governor no. : 0 421 815 367

Cust. part No. : 0250741002

Customer-spec. information

Customer : MB-NFZ
Motor : OM366LA
Power KW : 157.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 3.30
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.10
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 269.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206
guide sleeve
travel mm : 9.35
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.53
Tolerance mm : \pm 0.20

Rated speed rpm : 855

guide sleeve
travel mm : 5.56
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.17
Tolerance mm : \pm 0.25

Rated speed rpm : 1480
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1331

Rack travel in mm : 13.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 269.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.40
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1325
Tolerance 1/min : \pm 15

rack travel mm : 0.70
Tolerance mm : ± 0.70
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 65.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 6.90

Testing:

Rated speed rpm : 350
rack travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.10
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 13.95
Tolerance mm : ± 0.10

Rated speed rpm : 750
rack travel mm : 13.30
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.10
Tolerance mm : ± 0.05

Rated speed rpm : 1150
Pressure hPa : -
rack travel mm : 10.10
Tolerance mm : ± 0.15

MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 400
rack travel mm : 10.90
Tolerance mm : ± 0.05

Pressure hPa : 850
rack travel mm : 12.50
Tolerance mm : ± 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 200

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
rack travel mm : 13.30
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 265.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 13.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.08.97
Test oil : ISO 4113

Combination No. : 0 403 444 150

Injection pump
Pump designation : PES4MW100/720RS1212
EP type number : 0 413 404 114

Governor
Governor design. : RQV300...1300MW50
 : -23
Governor no. : 0 420 083 269

Cust. part No. : 0250741602

Customer spec. information
Customer : MB-NFZ
Motor : OM364LA
Power KW : 102.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 100.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300
Rack travel in mm : 6.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1350
Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1345
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1465
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.40
Tolerance mm : + 0.10

TORQUE CONTROL
Rated speed rpm : 1300
rack travel mm : 13.15
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 13.20
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.20

Tolerance mm : \pm 0.10
Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.90
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 400
rack travel mm : 12.70
Tolerance mm : \pm 0.10
Pressure hPa : 200
rack travel mm : 11.00
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220
Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 87.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 35.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 6.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.98
Test oil : ISO 4113
Combination No. : F 000 409 212
Injection pump
Pump designation : PES6A95D410RS2923
EP type number : F 000 400 401
Governor
Governor design. : RQV300...1300AB1326L
Governor no. : F 000 420 302

Cust. part No. : A 028 074 51 02

Customer-spec. information
Customer : MBB
Motor : OM 366LA/EuroI
Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 19.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.45
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 97.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 6.60

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 9.70
Tolerance mm : + 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.30
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.90
Tolerance mm : + 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.80
Tolerance mm : + 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1366

Rack travel in mm : 16.50

C04

Tolerance mm : + 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 97.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 113.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.50
Rated speed rpm : 1345
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1520
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1640

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.00

Testing:

Rated speed rpm : 300

rack travel mm : 6.60
Tolerance mm : ± 0.10

Rated speed rpm : 355

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 13.45
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.45
Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.50
Tolerance mm : ± 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 270
rack travel mm : 0.80
Tolerance mm : ± 0.10

Pressure hPa : 510
rack travel mm : 2.40
Tolerance mm : ± 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 210

Check
speed 1/min : > 80
Check
speed 1/min : < 230

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500

C05

Del. quantity
cm³/1000 strokes : 54.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.60
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.98
Test oil : ISO 4113

Combination No. : F 000 409 888

Injection pump
Pump designation : PES5P120A
EP type number : 0

Governor
Governor design. : RQV300...950
Governor no. : 0

Cust. part No. :

Customer spec. information
Customer : MBB

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

C06

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 271.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700
guide sleeve
travel mm : 5.45
Tolerance mm : \pm 0.25

Rated speed rpm : 1050
guide sleeve
travel mm : 7.80
Tolerance mm : \pm 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 0.75
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.55
Tolerance mm : \pm 0.25

Rated speed rpm : 1165
guide sleeve
travel mm : 9.45
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1120

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 271.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : \pm 6.0

RATED SPEED
rack travel mm : 12.55
Rated speed rpm : 1040
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1145
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : $>$ 10.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.40

Tolerance mm : \pm 0.10

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 550
rack travel mm : 13.95
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.95
Tolerance mm : \pm 0.05

Rated speed rpm : 850
rack travel mm : 13.90
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 500
rack travel mm : 1.10
Tolerance mm : \pm 0.15

Pressure hPa : 900
rack travel mm : 2.65
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 210

Check
speed 1/min : > 80
Check
speed 1/min : < 230

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
rack travel mm : 13.95
Tolerance mm : \pm 0.05
Del. quantity
cm³/1000 strokes : 294.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 286.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 143.0

Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.40
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 22.5
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113

Combination No. : 0 400 863 020

Injection pump
Pump designation : PES3A95D410/3RS2905
EP type number : 0 410 893 996

Governor
Governor design. : RSV325...1250A5C858L
Governor no. : 0 420 232 621

Cust. part No. : 0423 1592 KY

Customer spec. information
Customer : KHD-DMI
Motor : F3L912/913_NEU
Power kW : 40.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance

cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1530

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113
Combination No. : 0 400 863 021
Injection pump
Pump designation : PES3A95D410/3RS2905
EP type number : 0 410 893 996
Governor
Governor design. : RSV325...900A1C859L
Governor no. : 0 420 232 622

Cust. part No. : 0423 1593 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F3L912/913_NEU
Power KW : 40.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.80
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 80.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 7.90

Tolerance mm : ± 0.10

Del. quantity

cm³/1000 strokes : 11.5

Tolerance

cm³/1000 strokes : ± 2.0

Check tolerance

cm³/1000S. : ± 4.5

Spread

Tolerance

cm³/1000 strokes : 5.5

Check tolerance

cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever

position degree : FREE

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring

pre-tension

click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 80.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 3.0

Spread

Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever

position degree : 96.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.80

Rated speed rpm : 895

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 940

Tolerance 1/min : ± 10

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1110

rack travel mm : 4.00

Rated speed rpm : 960

Tolerance 1/min : ± 15

LOW IDLE

control lever

position degree : 75.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 7.40

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325

rack travel mm : 7.90

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 440

Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 7.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.08.97
Test oil : ISO 4113

Combination No. : 0 400 863 024

Injection pump
Pump designation : PES3A95D410/3RS2905
EP type number : 0 410 893 996

Governor
Governor design. : RSV325...1250A5C917L
Governor no. : 0 420 232 639

Cust. part No. : 0423 2328 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F3L912
Power kW : 44.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.9

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1530

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.00
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.9

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97
Test oil : ISO 4113
Combination No. : 0 400 864 099
Injection pump
Pump designation : PES4A95D410/3RS2789
EP type number : 0 410 894 995
Governor
Governor design. : RSV325...1250A5C858L
Governor no. : 0 420 232 621

Cust. part No. : 0423 1595 KY

Customer spec. information
Customer : KHD-DMI
Motor : F4L912/913_NEU
Power KW : 54.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance

cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1530

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 510
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.03.97
Test oil : ISO 4113

Combination No. : 0 400 864 102

Injection pump
Pump designation : PES4A95D410/3RS2789
EP type number : 0 410 894 995

Governor
Governor design. : RSV325...1250A5C861L
Governor no. : 0 420 232 624

Cust. part No. : 0423 1789 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F4L912/913_NEU
Power KW : 59.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 76.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1339
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1510

rack travel mm : 4.00
Rated speed rpm : 1360
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 69.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT min min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 473
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 25.06.97
Test oil : ISO 4113

Combination No. : 0 400 866 222

Injection pump
Pump designation : PES6A95D410/3RS2907
EP type number : 0 410 896 884

Governor
Governor design. : RSV325...1250A5C950L
Governor no. : 0 420 232 641

Cust. part No. : 0423 1601 KY

Customer spec. information

Customer : KHD-DMI
Motor : F6L912/913_NEU
Power KW : 81.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed

Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Spreed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1550

rack travel mm : 4.00
Rated speed rpm : 1400
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : ± 0.10

Rated speed rpm : 100
CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 595
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.01.98
Test oil : ISO 4113

Combination No. : 0 400 866 225

Injection pump
Pump designation : PES6A95D410/3RS2907
EP type number : 0 410 896 884

Governor
Governor design. : RSV325...1250A5C967L
Governor no. : 0 420 232 647

Cust. part No. : 0423 1813 KY

Customer-spec. information
Customer : KHD-DMI
Motor : F6L912/913_NEU
Power KW : 89.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 102.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.35
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1340
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1540

rack travel mm : 4.00
Rated speed rpm : 1385
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 68.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 8.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000s. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 8.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.07.97
Test oil : ISO 4113

Combination No. : 0 400 866 230

Injection pump
Pump designation : PES6A95D410/3RS2907
EP type number : 0 410 896 884

Governor
Governor design. : RSV325...1250A5C874L
Governor no. : 0 420 232 629

Cust. part No. : 0423 2054 KY

Customer-spec. information
Customer : KHD-DMI
Motor : BF6L 913
Power KW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.20
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 93.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 93.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.20
Rated speed rpm : 1295

Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355

Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1550

rack travel mm : 4.00
Rated speed rpm : 1400

Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.70

Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 8.20

Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 560

Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.20

Tolerance mm : \pm 0.05
Rated speed rpm : 500
rack travel mm : 13.25
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 124.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.01.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 033

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1050A0C911R
Governor no. : F 002 A20 223

Cust. part No. : 3283692

Customer-spec. information
Customer : CUMMINS
Motor : GBT-155 PS/2100

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.20

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 20.8

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1200

D07

Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.20
Rated speed rpm : 1095

Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1185

Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1300

rack travel mm : 4.00
Tolerance mm : \pm 0.05

Rated speed rpm : 1185
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 83.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 11.75
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 87.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.8
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98
Test oil : ISO 4113
Combination No. : 0 400 656 152
Injection pump
Pump designation : PE6A90D412RS2507
EP type number : 0 410 696 178
Governor
Governor design. : RGV300...1400AB970DL
Governor no. : 0 420 214 222

Cust. part No. :

Customer-spec. information
Customer : SNF
Motor : WD61039
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 56.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

Rated speed rpm : 300

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1565

Rack travel in mm : 7.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 56.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Spread
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 7.50
Rated speed rpm : 1445
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1495
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 77.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 8.55
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 9.65
Tolerance mm : ± 0.05

Rated speed rpm : 905
rack travel mm : 9.30
Tolerance mm : ± 0.10

Rated speed rpm : 1060

rack travel mm : 8.80
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 53.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

Aneroid pressure
hPa : -
Rated speed rpm : 500
rack travel mm : 9.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 45.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

D11

Rated speed rpm : 300

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.01.98
Test oil : ISO 4113
Combination No. : 0 400 876 375
Injection pump
Pump designation : PES6A95D320RS2693
EP type number : 0 410 896 914
Governor
Governor design. : RSV300...1300A0C2251
: R
Governor no. : 0 420 233 272
Cust. part No. :

Customer-spec. information

Customer : DAF
Motor : NT 116
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 9.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Beginning of delivery difference

and maximum rack
travel : 9.00
Tolerance mm : ± 0.50
Difference ° CS : 3.00

BASIC SETTING

Rated speed rpm : 1290

Rack travel in mm : 10.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 62.0

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 5.90

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 8.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 62.0

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.30

Rated speed rpm : 1345

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1405

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1575

rack travel mm : 4.00

Rated speed rpm : 1425

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
rack travel mm : 6.40
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 300
rack travel mm : 5.90
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 590
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1290
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 10.60
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 1290
Del. quantity
cm³/1000 strokes : 69.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 8.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.01.98
Test oil : ISO 4113

Combination No. : 0 402 736 842AA

Injection pump
Pump designation : PES6P120A120RS7281
EP type number : 0 412 726 890

Governor
Governor design. : RQV400...1250PA1060
: -1K
Governor no. : 0 421 815 344

Cust. part No. : 3933296

Customer-spec. information
Customer : CDC
Motor : 6BTA-A
Power KW : 119.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 6.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.35

| | |
|--|----------|
| Tolerance mm | : + 0.05 |
| <hr/> | |
| Del. quantity cm ³ /1000 strokes | : 153.5 |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : + 4.0 |
| <hr/> | |
| Speed | |
| <hr/> | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| <hr/> | |
| Check tolerance cm ³ /1000S. | : 12.0 |
| <hr/> | |
| | |
| Rated speed rpm | : 420 |
| <hr/> | |
| Rack travel in mm | : 6.00 |
| Tolerance mm | : + 0.20 |
| Del. quantity cm ³ /1000 strokes | : 15.5 |
| Tolerance cm ³ /1000 strokes | : + 3.0 |
| Check tolerance cm ³ /1000S. | : + 5.0 |
| <hr/> | |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|---------------------------|----------|
| Rated speed rpm | : 1313 |
| guide sleeve travel mm | : 7.14 |
| Tolerance mm | : + 0.15 |
| <hr/> | |
| Rated speed rpm | : 400 |
| guide sleeve travel mm | : 0.91 |
| Tolerance mm | : + 0.20 |
| <hr/> | |
| Rated speed rpm | : 936 |
| guide sleeve travel mm | : 4.64 |
| Tolerance mm | : + 0.25 |
| <hr/> | |
| Rated speed rpm | : 640 |

| | |
|---------------------------|----------|
| guide sleeve travel mm | : 3.04 |
| Tolerance mm | : + 0.25 |
| <hr/> | |
| Rated speed rpm | : 1740 |
| guide sleeve travel mm | : 11.50 |
| Tolerance mm | : + 0.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 1250 |
| Aneroid pressure hPa | : 800 |
| Del. quantity cm ³ /1000 strokes | : 153.5 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 4.0 |
| <hr/> | |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 120.0 |
| tolerance degree | : + 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 12.30 |
| Rated speed rpm | : 1325 |
| Tolerance 1/min | : + 15 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1475 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.50 |
| Tolerance mm | : + 0.50 |
| Rated speed rpm | : 1550 |

LOW IDLE

| | |
|----------------------------------|---------|
| control lever position degree | : 73.0 |
| tolerance degree | : + 4.0 |

| | |
|----------------------------------|--------|
| Control lever difference Grad | : 47.0 |
|----------------------------------|--------|

tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 400

CRT mm min. : $>$ 5.80

Testing:

Rated speed rpm : 420

rack travel mm : 6.00

Tolerance mm : \pm 0.20

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250

rack travel mm : 13.35

Tolerance mm : \pm 0.05

Rated speed rpm : 800

rack travel mm : 12.00

Tolerance mm : \pm 0.20

Rated speed rpm : 500

rack travel mm : 11.60

Tolerance mm : \pm 0.20

Rated speed rpm : 900

rack travel mm : 12.40

Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250

Pressure hPa : 1200

Rated speed rpm : 1250

Pressure hPa : -

rack travel mm : 9.15

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 310

rack travel mm : 12.30

Tolerance mm : \pm 0.30

Pressure hPa : 175

rack travel mm : 10.20

Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100

Rated speed rpm : $<$ 280

Check

speed 1/min : $>$ 80

Check

speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 800

Rated speed rpm : 800

Del. quantity

cm³/1000 strokes : 133.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

rack travel mm : 11.60

Tolerance mm : \pm 0.20

Aneroid pressure

hPa : -

Rated speed rpm : 1250

Del. quantity

cm³/1000 strokes : 84.0

Tolerance

cm³/1000 strokes : \pm 2.0

Check tolerance

cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 13.50

Tolerance mm : \pm 0.50

Del. quantity

cm³/1000 strokes : 155.0

Tolerance

cm³/1000 strokes : \pm 20.0

Check tolerance

cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 6.00
Tolerance mm : \pm 0.20

Del. quantity
cm³/1000 strokes : 15.5
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.01.98
Test oil : ISO 4113
Combination No. : 0 402 776 825
Injection pump
Pump designation : PES6P120A72ORS7382
EP type number : 0 412 726 943
Governor
Governor design. : RSV400...1100P0A547
: -7
Governor no. : 0 421 833 496
Cust. part No. : RE501786

Customer spec. information
Customer : DEERE
Motor : 6DE1 AF0C1
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 079
Inlet press. bar : 2.0
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

D19

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0
Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75
Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference * CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.80
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 198.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 400

Rack travel in mm : 5.85
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 28.5

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1400

Del. quantity
cm³/1000 strokes : 198.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 95.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.80

Rated speed rpm : 1170
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1225

Tolerance 1/min : + 5

rack travel mm : 0.85
Tolerance mm : + 0.55

Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1230

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.35
Tolerance mm : + 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400
rack travel mm : 5.85
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.75
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 880
rack travel mm : 11.50
Tolerance mm : \pm 0.20

Pressure hPa : 450
rack travel mm : 9.70
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 211.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.85
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 28.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.01.98
Test oil : ISO 4113

Combination No. : 0 403 466 181

Injection pump
Pump designation : PES6MW100/120RS1238
EP type number : 0 413 406 237

Governor
Governor design. : RSV500...1000MWA409
Governor no. : 0 420 085 300

Cust. part No. : 3928288

Customer-spec. information

Customer : CDC
Motor : 6 CT
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack
travel : 15.00
Difference ° CS : 2.00

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.75
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 136.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 500

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

D23

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 136.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.70
Rated speed rpm : 1055
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1160
Tolerance 1/min : \pm 5

rack travel mm : 1.00
Tolerance mm : \pm 0.70
Rated speed rpm : 1250

rack travel mm : 4.00
Rated speed rpm : 1160
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 83.0
tolerance degree : \pm 4.0

Control Lever difference
Grad : 17.0

tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 5.00
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500
rack travel mm : 5.50
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.75
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.10
Tolerance mm : + 0.10

Rated speed rpm : 900
rack travel mm : 12.45
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.70
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 930
rack travel mm : 12.60
Tolerance mm : + 0.20

Pressure hPa : 640
rack travel mm : 11.40
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 160.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

rack travel mm : 12.45
Tolerance mm : + 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 117.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 177.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000s. : + 13.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 5.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.01.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 061

Injection pump
Pump designation : PES4A95D320/3RS2927
EP type number : F 002 A10 017

Governor
Governor design. : RSV475...1100A2C941R
Governor no. : F 002 A20 242

Cust. part No. : 3930143

Customer spec. information
Customer : CDC
Motor : 4BNA3.9
Power kW : 54.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

D26

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 9.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.55
Tolerance mm : ± 0.05

Rated speed rpm : 475
 Rack travel in mm : 5.40
 Tolerance mm : + 0.20
 Del. quantity
 cm³/1000 strokes : 13.5
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000S. : + 4.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.5
 Check tolerance
 cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 3
 Rated speed rpm : 800
 Rack travel in mm : 0.50
 Tolerance mm : + 0.20
 governor spring
 pre-tension
 click setting x : 3.00

CONTROL LEVER

control lever
 position degree : 100.0
 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.50
 Rated speed rpm : 1175
 Tolerance 1/min : + 5

rack travel mm : 4.00
 Rated speed rpm : 1240
 Tolerance 1/min : + 5

rack travel mm : 0.85
 Tolerance mm : + 0.55
 Rated speed rpm : 1350

rack travel mm : 4.00
 Rated speed rpm : 1250
 Tolerance 1/min : + 15

LOW IDLE

control lever
 position degree : 80.0
 tolerance degree : + 4.0

Control lever difference

Grad : 20.0
 tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
 rack travel mm : 4.90
 Tolerance mm : + 0.20

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
 rack travel mm : 5.40
 Tolerance mm : + 0.20

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 10.55
 Tolerance mm : + 0.05

Rated speed rpm : 600
 rack travel mm : 10.55
 Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
 Rated speed rpm : 600
 Del. quantity
 cm³/1000 strokes : 82.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 3.0
 Spreed

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.40
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 042

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV500...1100A0C924R
Governor no. : F 002 A20 232

Cust. part No. : 3932477

Customer spec. information
Customer : CDC
Motor : 6BT
Power KW : 82.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 77.5

| | |
|-------------------------------|---------|
| Tolerance | |
| cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 3.0 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 3.5 |
| Check tolerance | |
| cm ³ /1000S. | : 6.0 |

| | |
|-------------------------------|----------|
| Rated speed rpm | : 500 |
| Rack travel in mm | : 5.10 |
| Tolerance mm | : ± 0.10 |
| Del. quantity | |
| cm ³ /1000 strokes | : 18.5 |
| Tolerance | |
| cm ³ /1000 strokes | : ± 2.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 4.5 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 3.5 |
| Check tolerance | |
| cm ³ /1000S. | : 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : ± 0.20 |
| governor spring | |
| pre-tension | |
| click setting x | : 2.25 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|--------|
| Rated speed rpm | : 1100 |
| Aneroid pressure | |
| hPa | : - |

| | |
|-------------------------------|---------|
| Del. quantity | |
| cm ³ /1000 strokes | : 77.5 |
| Tolerance | |
| cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : ± 3.0 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 3.5 |
| Check tolerance | |
| cm ³ /1000S. | : 6.0 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 95.0 |
| tolerance degree | : ± 4.0 |

| | |
|-----------------|--------|
| RATED SPEED | |
| rack travel mm | : 8.80 |
| Rated speed rpm | : 1160 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 5.40 |
| Rated speed rpm | : 1220 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : ± 0.55 |
| Rated speed rpm | : 1400 |

| | |
|-----------------|--------|
| rack travel mm | : 5.40 |
| Rated speed rpm | : 1225 |
| Tolerance 1/min | : ± 15 |

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 80.0 |
| tolerance degree | : ± 4.0 |

| | |
|--------------------------|---------|
| Control lever difference | |
| Grad | : 15.0 |
| tolerance degree | : ± 6.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 500 |
| rack travel mm | : 4.60 |
| Tolerance mm | : ± 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

Rated speed rpm : 500
rack travel mm : 5.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.75
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 10.80
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 89.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.5
Tolerance
cm³/1000 strokes : \pm 2.0

E03

Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98

Test oil : ISO 4113

Combination No. : 0 402 046 861

Injection pump

Pump designation : PE6P110A320RS3329

EP type number : 0 412 016 743

Governor

Governor design. : RQ325/1300PA1150

Governor no. : 0 421 801 716

Cust. part No. : 1284420/4

Customer spec. information

Customer : DAF

Motor : NS156M

Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Test nozzle holder assembly

: 1 688 901 101

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

EO4

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 12.0

Check tolerance
cm³/1000S. : 15.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1351
guide sleeve
travel mm : 6.37
Tolerance mm : ± 0.10

Rated speed rpm : 325
guide sleeve
travel mm : 1.99
Tolerance mm : ± 0.10

Rated speed rpm : 1300
guide sleeve
travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 427
guide sleeve
travel mm : 3.54

Tolerance mm : ± 0.10

Rated speed rpm : 590
guide sleeve
travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 1570
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 650

Rack travel in mm : 20.00
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 144.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 93.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.85
Rated speed rpm : 1345

Tolerance 1/min : ± 5
Check

speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1450
Tolerance 1/min : ± 15

Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : > 5.90

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 600
Pressure hPa : -

E06

rack travel mm : 7.35
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : + 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0

rack travel mm : 11.85
Tolerance mm : + 0.05

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98

Test oil : ISO 4113

Combination No. : 0 402 046 873

Injection pump

Pump designation : PES6P110A320RS3329

EP type number : 0 412 016 743

Governor

Governor design. : RQV325...1250PA1251

Governor no. : 0 421 814 164

Cust. part No. : 1305227

Customer spec. information

Customer : DAF

Motor : NS177M

Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder assembly

: 1 688 901 101

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

E08

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 149.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 12.0

Check tolerance
cm³/1000S. : 15.0

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1308
guide sleeve

travel mm : 10.40
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve

travel mm : 1.25
Tolerance mm : \pm 0.20

Rated speed rpm : 868
guide sleeve

travel mm : 5.45
Tolerance mm : \pm 0.25

Rated speed rpm : 520
guide sleeve

travel mm : 3.02

Tolerance mm : \pm 0.25

Rated speed rpm : 1510

guide sleeve
travel mm : 13.50

Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1360

Rack travel in mm : 11.25

Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 149.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 12.0

Check tolerance
cm³/1000S. : 15.0

CONTROL LEVER

control lever

position degree : 123.0

tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.25

Rated speed rpm : 1290

Tolerance 1/min : \pm 5

Check
speed 1/min : \pm 10

rack travel mm : 4.00

Rated speed rpm : 1375

Tolerance 1/min : \pm 15

Check
speed 1/min : \pm 20

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 5.90

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.25
Tolerance mm : \pm 0.10

Rated speed rpm : 1250
rack travel mm : 12.25
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 430
rack travel mm : 10.90
Tolerance mm : \pm 0.05

Pressure hPa : 220
rack travel mm : 7.85
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 12.25
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98
Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325...1250PA1370
Governor no. : 0 421 801 828

Cust. part No. : 1305236

Customer-spec. information
Customer : DAF
Motor : NS177M
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 149.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1292
guide sleeve
travel mm : 6.37
Tolerance mm : ± 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.99
Tolerance mm : ± 0.20

Rated speed rpm : 1000
guide sleeve
travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 426

guide sleeve
travel mm : 3.48
Tolerance mm : ± 0.10

Rated speed rpm : 590
guide sleeve
travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 1460
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 149.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 11.25
Rated speed rpm : 1290
Tolerance 1/min : ± 5
Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1370

Tolerance 1/min : + 15
Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 415
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : + 0.05

Rated speed rpm : 1250
rack travel mm : 12.25
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.25
Tolerance mm : + 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.00
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 430
rack travel mm : 10.90
Tolerance mm : + 0.05

Pressure hPa : 220
rack travel mm : 8.10
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 27.01.98

Test oil : ISO 4113

Combination No. : 0 402 076 820

Injection pump

Pump designation : PES6P120A720LS3395

EP type number : 0 412 026 806

Governor

Governor design. : RSV350...1200POA688

Governor no. : 0 421 833 610

Cust. part No. :

Customer spec. information

Customer : FINCANTIERI

Motor : L 1306 T 2 MSD

Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 115

Tolerance l/h : ± 15.0

Test nozzle holder assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1- 5A- 3- 6A- 2

: - 4A

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.45

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 276.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : + 0.20

governor spring

pre-tension

click setting x : 5.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 276.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 100.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.40

Rated speed rpm : 1245

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1410

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1570

LOW IDLE

control lever

position degree : 78.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 3.50

Tolerance mm : + 0.10

Testing:

Rated speed rpm : 350

rack travel mm : 4.00

Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 505

Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1200

rack travel mm : 14.45

Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 14.50
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 15.00
Tolerance mm : \pm 0.30

Rated speed rpm : 400
rack travel mm : 14.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1600
rack travel mm : 14.45
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 700
rack travel mm : 11.40
Tolerance mm : \pm 0.10

Pressure hPa : 1050
rack travel mm : 13.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 349.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 500.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Delivery for standard plunger/barrel
assemblies.
Zero delivery for shutoff assemblies
(refer to cam sequence).

Rated speed rpm : 350
Rack travel in mm : 4.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.98

Test oil : ISO 4113

Combination No. : 0 402 648 780

Injection pump

Pump designation : PE8P120A320LS7871

EP type number : 0 412 628 877

Governor

Governor design. : RQV300...1050PA1078

: -2K

Governor no. : 0 421 815 548

Cust. part No. : 988 04 47

Customer spec. information

Customer : LIEBHERR

Motor : D 9408 TI-EA3

Power kW : 420.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 230

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6

: - 3- 5- 4

Phasing

: 0-45-90-135-180

: -225-270-315

Tolerance

: ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 295.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.90

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000s. : + 6.0

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000s. : 10.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.27
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.11
Tolerance mm : + 0.20

Rated speed rpm : 755
guide sleeve
travel mm : 6.17
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.75
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1180

Rack travel in mm : 12.50
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 295.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.65
Rated speed rpm : 1110
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
CRT mm min. : > 6.60

Testing:

Rated speed rpm : 350
rack travel mm : 4.90
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.00
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.20
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 10.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
Pressure hPa : -
rack travel mm : 8.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1050
Pressure hPa : 1050
rack travel mm : 11.80

Tolerance mm : \pm 0.05

Pressure hPa : 700
rack travel mm : 9.50
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 299.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.00
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.98
Test oil : ISO 4113

Combination No. : 0 402 648 780A

Injection pump
Pump designation : PE8P120A320LS7871
EP type number : 0 412 628 877

Governor
Governor design. : RQV300...1050PA1078
: -2K
Governor no. : 0 421 815 548

Cust. part No. : 988 04 47

Customer-spec. information
Customer : LIEBHERR
Motor : D 9408 TI-EA3
Power KW : 420.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6
: - 3- 5- 4

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 295.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.90
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance

cm³/1000 strokes : 6.0
Check tolerance

cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117
guide sleeve
travel mm : 10.27
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.11
Tolerance mm : + 0.20

Rated speed rpm : 755
guide sleeve
travel mm : 6.17
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.75
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1182

Rack travel in mm : 12.48
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure

hPa : 1600

Del. quantity
cm³/1000 strokes : 295.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance

cm³/1000 strokes : 5.0
Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.65

Rated speed rpm : 1110
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1200

Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 6.60

Testing:

Rated speed rpm : 350
rack travel mm : 4.90
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 10.00
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.20
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 10.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 1600
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
Pressure hPa : -
rack travel mm : 8.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 1050
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Pressure hPa : 700
rack travel mm : 9.50

Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 270

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
rack travel mm : 11.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 299.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.00
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98
Test oil : ISO 4113
Combination No. : 0 402 736 825
Injection pump
Pump designation : PES6P120A720/3LS7251
EP type number : 0 412 726 860

Governor
Governor design. : RQV300...1000PA962
: -8K
Governor no. : 0 421 815 303

Cust. part No. : 3-7206

Customer-spec. information
Customer : MAN
Motor : D2866LF09
Power KW : 309.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

E27

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.50
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 296.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 300

Rack travel in mm : 5.20
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 32.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1055
guide sleeve
travel mm : 9.19
Tolerance mm : ± 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 3.41
Tolerance mm : ± 0.25

Rated speed rpm : 780

guide sleeve
travel mm : 6.01
Tolerance mm : ± 0.25

Rated speed rpm : 301
guide sleeve
travel mm : 3.26
Tolerance mm : ± 0.25

Rated speed rpm : 351
guide sleeve
travel mm : 3.96
Tolerance mm : ± 0.25

Rated speed rpm : 470
guide sleeve
travel mm : 4.39
Tolerance mm : ± 0.25

Rated speed rpm : 1186
guide sleeve
travel mm : 12.00
Tolerance mm : ± 0.25

Rated speed rpm : 1280
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1130

Rack travel in mm : 12.40
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 296.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

CONTROL LEVER

control lever
position degree : 291.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.40
Rated speed rpm : 1045
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1140
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 247.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $>$ 7.30

Testing:

Rated speed rpm : 300
rack travel mm : 5.20
Tolerance mm : \pm 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.95
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 13.50
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 750

F01

rack travel mm : 6.50
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 13.95
Tolerance mm : \pm 0.05

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 720
rack travel mm : 12.00
Tolerance mm : \pm 0.20

Pressure hPa : 220
rack travel mm : 9.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 269.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 287.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0
Spreed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 32.0

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.97
Test oil : ISO 4113
Combination No. : 9 400 087 503
Injection pump
Pump designation : PES5P120A720LS7280
EP type number : 9 400 087 087
Governor
Governor design. : RQV300...950PA1263
Governor no. : 9 420 080 392

Cust. part No. : 0270740102

Customer spec. information

Customer : MBB
Motor : OM 449 LA-EUROII
Power KW : 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 13.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 253.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.30

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 12.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Spread

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700

guide sleeve

travel mm : 5.45

Tolerance mm : + 0.25

Rated speed rpm : 1050

guide sleeve

travel mm : 7.80

Tolerance mm : + 0.10

Rated speed rpm : 300

guide sleeve

travel mm : 0.75

Tolerance mm : + 0.25

Rated speed rpm : 500

guide sleeve

travel mm : 3.55

Tolerance mm : + 0.25

Rated speed rpm : 1165

guide sleeve

travel mm : 9.45

Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1120

Rack travel in mm : 16.50

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600

Aneroid pressure

hPa : 1200

Del. quantity

cm³/1000 strokes : 253.0

Tolerance

cm³/1000 strokes : + 1.0

Check tolerance

cm³/1000S. : + 4.0

Spread

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 52.0

tolerance degree : + 4.0

control lever

position degree : 117.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.10

Rated speed rpm : 1005

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1125

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1220

LOW IDLE

control lever

position degree : 83.0

tolerance degree : + 4.0

control lever

position degree : 18.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT min. : > 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.30
Tolerance mm : + 0.10

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 13.45
Tolerance mm : + 0.05

Rated speed rpm : 950
rack travel mm : 13.15
Tolerance mm : + 0.05

Rated speed rpm : 900
rack travel mm : 13.15
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.45
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 13.50
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.45
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 1.75
Tolerance mm : + 0.15

Pressure hPa : 500
rack travel mm : 0.60
Tolerance mm : + 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 234.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 13.15
Tolerance mm : + 0.05

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 246.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 143.0

Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 262.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.30
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.01.98
Test oil : ISO 4113
Combination No. : F 000 409 005
Injection pump
Pump designation : PES6P110A720RS3396
EP type number : F 000 400 004
Governor
Governor design. : RQV300...1300PA1379K
Governor no. : F 000 420 504

Cust. part No. : 0280742402

Customer spec. information
Customer : MBB
Motor : OM366LA-EURO II
Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 115.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

| | |
|-------------------------------|-------|
| Tolerance | |
| cm ³ /1000 strokes | : 4.0 |
| Check tolerance | |
| cm ³ /1000S. | : 7.5 |

Rated speed rpm : 300

| | |
|-------------------------------|----------|
| Rack travel in mm | : 5.60 |
| Tolerance mm | : + 0.20 |
| Del. quantity | |
| cm ³ /1000 strokes | : 10.0 |
| Tolerance | |
| cm ³ /1000 strokes | : + 2.5 |
| Check tolerance | |
| cm ³ /1000S. | : + 5.0 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.5 |
| Check tolerance | |
| cm ³ /1000S. | : 7.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|-----------------|----------|
| Rated speed rpm | : 1356 |
| guide sleeve | |
| travel mm | : 9.16 |
| Tolerance mm | : + 0.10 |

| | |
|-----------------|----------|
| Rated speed rpm | : 300 |
| guide sleeve | |
| travel mm | : 1.45 |
| Tolerance mm | : + 0.25 |

| | |
|-----------------|----------|
| Rated speed rpm | : 530 |
| guide sleeve | |
| travel mm | : 4.01 |
| Tolerance mm | : + 0.25 |

| | |
|-----------------|----------|
| Rated speed rpm | : 1720 |
| guide sleeve | |
| travel mm | : 13.50 |
| Tolerance mm | : + 0.25 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|-------------------------------|---------|
| Rated speed rpm | : 1300 |
| Aneroid pressure | |
| hPa | : 1000 |
| Del. quantity | |
| cm ³ /1000 strokes | : 115.5 |

| | |
|-------------------------------|---------|
| Tolerance | |
| cm ³ /1000 strokes | : + 1.0 |
| Check tolerance | |
| cm ³ /1000S. | : + 4.0 |
| Speed | |
| Tolerance | |
| cm ³ /1000 strokes | : 4.0 |
| Check tolerance | |
| cm ³ /1000S. | : 7.5 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 110.0 |
| tolerance degree | : + 4.0 |

| | |
|-----------------|---------|
| RATED SPEED | |
| rack travel mm | : 12.90 |
| Rated speed rpm | : 1340 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1485 |
| Tolerance 1/min | : + 15 |

| | |
|-----------------|----------|
| rack travel mm | : 0.50 |
| Tolerance mm | : + 0.50 |
| Rated speed rpm | : 1600 |

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 65.0 |
| tolerance degree | : + 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 200 |
| CRT mm min. | : > 7.00 |

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 300 |
| rack travel mm | : 5.60 |
| Tolerance mm | : + 0.20 |

| | |
|-----------------|-------|
| Rated speed rpm | : 425 |
|-----------------|-------|

TORQUE CONTROL

| | |
|-----------------|----------|
| Rated speed rpm | : 1300 |
| rack travel mm | : 14.00 |
| Tolerance mm | : + 0.05 |

Rated speed rpm : 600
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 780
rack travel mm : 13.25
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 13.75
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 250
rack travel mm : 0.40
Tolerance mm : \pm 0.05

Pressure hPa : 500
rack travel mm : 1.70
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 200

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 220

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 90.0

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 780
rack travel mm : 13.25
Tolerance mm : \pm 0.05
Del. quantity
cm³/1000 strokes : 96.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.60
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.01.98
Test oil : ISO 4113
Combination No. : F 000 409 102
Injection pump
Pump designation : PES6P120A720LS7257
: -11
EP type number : F 000 400 201
Governor
Governor design. : RQV300...950PA1242
Governor no. : 9 420 080 387
Cust. part No. : 0280743302

Customer spec. information
Customer : MBB
Motor : OM 447LA Euro II
Power kW : 264.8

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.3
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 4.70
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 21.00
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 550
Rack travel in mm : 13.40
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 277.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 7.5

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700
guide sleeve
travel mm : 4.55
Tolerance mm : ± 0.25

Rated speed rpm : 1050
guide sleeve
travel mm : 7.70
Tolerance mm : ± 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 0.75
Tolerance mm : ± 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.45
Tolerance mm : ± 0.25

Rated speed rpm : 1165
guide sleeve
travel mm : 9.55
Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1120

Rack travel in mm : 16.50
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550
Aneroid pressure
hPa : 1300

Del. quantity
cm³/1000 strokes : 277.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 115.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 12.10
Rated speed rpm : 1025
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1135
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1230

LOW IDLE

control lever
position degree : 78.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT min. : > 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.00
Tolerance mm : ± 0.10

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 550
rack travel mm : 13.40
Tolerance mm : ± 0.05

Rated speed rpm : 950
rack travel mm : 13.20
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.40
Tolerance mm : ± 0.05

Rated speed rpm : 900
rack travel mm : 13.25
Tolerance mm : ± 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1300
rack travel mm : 13.40
Tolerance mm : ± 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 2.40
Tolerance mm : ± 0.15

Pressure hPa : 550
rack travel mm : 1.00
Tolerance mm : ± 0.10

Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 220

Check
speed 1/min : > 80

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1300

Rated speed rpm : 950

Del. quantity
cm³/1000 strokes : 255.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000s. : ± 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

Aneroid pressure

hPa : 1300

Rated speed rpm : 750

rack travel mm : 13.40

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 268.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000s. : ± 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 140.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 248.5
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 7.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.01.98
Test oil : ISO 4113

Combination No. : F 000 409 888

Injection pump
Pump designation : PES5P120A
EP type number : 0

Governor
Governor design. : RQV300...950
Governor no. : 0

Cust. part No. :

Customer-spec. information
Customer : MBB

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

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REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 271.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.5
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700
guide sleeve
travel mm : 5.45
Tolerance mm : \pm 0.25

Rated speed rpm : 1050
guide sleeve
travel mm : 7.80
Tolerance mm : \pm 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 0.75
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.55
Tolerance mm : \pm 0.25

Rated speed rpm : 1165
guide sleeve
travel mm : 9.45
Tolerance mm : \pm 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1120

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

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FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 271.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 121.0
tolerance degree : \pm 6.0

RATED SPEED
rack travel mm : 12.55
Rated speed rpm : 1035
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1140
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 79.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : > 10.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.20

Tolerance mm : + 0.10

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.55
Tolerance mm : + 0.05

Rated speed rpm : 550
rack travel mm : 13.95
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 13.95
Tolerance mm : + 0.05

Rated speed rpm : 850
rack travel mm : 13.90
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.55
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 500
rack travel mm : 1.10
Tolerance mm : + 0.15

Pressure hPa : 900
rack travel mm : 2.65
Tolerance mm : + 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 210

Check
speed 1/min : > 80
Check
speed 1/min : < 230

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 550
Del. quantity
cm³/1000 strokes : 302.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
rack travel mm : 13.95
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 294.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 286.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 143.0

Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 6.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 19.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 007

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1100A0C881R
Governor no. : F 002 A20 207

Cust. part No. : 3928597

Customer spec. information
Customer : CUMMINS
Motor : 6BTA
Power KW : 122.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.40

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 109.9

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 485

Rack travel in mm : 5.20

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 109.9

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.40

Rated speed rpm : 1155

Tolerance 1/min : \pm 5

rack travel mm : 6.50

Rated speed rpm : 1215

Tolerance 1/min : \pm 5

rack travel mm : 0.85

Tolerance mm : \pm 0.55

Rated speed rpm : 1400

rack travel mm : 6.50

Rated speed rpm : 1215

Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 20.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 485

rack travel mm : 4.70

Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 485
rack travel mm : 5.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700
rack travel mm : 12.30
Tolerance mm : \pm 0.20

Pressure hPa : 500
rack travel mm : 10.80
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800

Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 15.0

LOW IDLE

Rated speed rpm : 485

Rack travel in mm : 5.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98
Test oil : ISO 4113

Combination No. : 0 402 746 613

Injection pump
Pump designation : PES6P120A320RS7372
EP type number : 0 412 726 940

Governor
Governor design. : RQV250...1250PA1283K
Governor no. : 0 421 815 516

Cust. part No. : 3866785

Customer-spec. information
Customer : CDC
Motor : 68TA
Power kW : 164.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 4.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : + 0.50
Check
tolerance *NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.05
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 129.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 7.40

Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1305
guide sleeve
travel mm : 7.93
Tolerance mm : + 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.39
Tolerance mm : + 0.20

Rated speed rpm : 864
guide sleeve
travel mm : 5.36
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.18
Tolerance mm : + 0.25

Rated speed rpm : 1860
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 129.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.00
Rated speed rpm : 1335
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1500
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1635

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Control lever difference
Grad : 38.0
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 275
CRT mm min. : > 8.20

Testing:

Rated speed rpm : 300
rack travel mm : 7.40
Tolerance mm : \pm 0.20

Rated speed rpm : 450

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.05
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 11.80
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 12.00
Tolerance mm : \pm 0.10

Rated speed rpm : 600
rack travel mm : 11.40
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 900

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 550
rack travel mm : 11.10
Tolerance mm : \pm 0.20

Pressure hPa : 265
rack travel mm : 10.30
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 250

Check
speed 1/min : > 80
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 132.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 12.00
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 93.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 7.40
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.98
Test oil : ISO 4113

Combination No. : 9 400 030 695

Injection pump
Pump designation : PES4A95D32Q/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1250A0C825R
Governor no. : 9 420 034 701

Cust. part No. : 3928665

Customer spec. information
Customer : CDC
Motor : 4BT3.9
Power KW : 82.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 8.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 106.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.80

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 20.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 114.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.50

Rated speed rpm : 1340

Tolerance 1/min : + 5

rack travel mm : 6.80

Rated speed rpm : 1405

Tolerance 1/min : + 5

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1500

rack travel mm : 6.80

Rated speed rpm : 1405

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 87.0
tolerance degree : + 4.0

Control lever difference
Grad : 27.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.30
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475

rack travel mm : 5.80
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.55
Tolerance mm : \pm 0.05

Rated speed rpm : 750

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.60
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600
rack travel mm : 12.35
Tolerance mm : \pm 0.20

Pressure hPa : 460
rack travel mm : 11.90
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 80.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50

Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.98
Test oil : ISO 4113
Combination No. : 9 400 030 747
Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214
Governor
Governor design. : RSV475...1100A0C863R
Governor no. : 9 420 034 721

Cust. part No. : 3930152

Customer spec. information
Customer : CDC
Motor : 4BT3.9
Power KW : 71.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 100.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 475

Rack travel in mm : 5.70

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 100.0

G02

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 99.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.75
Rated speed rpm : 1170
Tolerance 1/min : ± 5

rack travel mm : 6.00
Rated speed rpm : 1240
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1375

rack travel mm : 6.00
Rated speed rpm : 1240
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 87.0
tolerance degree : ± 4.0

Control lever difference
Grad : 12.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.20
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.70
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.75
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.75
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 750
Pressure hPa : 1000

Rated speed rpm : 750
Pressure hPa : -
rack travel mm : 11.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 750

Pressure hPa : 600
rack travel mm : 12.70
Tolerance mm : \pm 0.20

Pressure hPa : 410
rack travel mm : 11.80
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 110.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -

603

Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 86.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 062

Injection pump
Pump designation : PES4A95D320/3RS2927
EP type number : F 002 A10 017

Governor
Governor design. : RSV475...1100A2C942R
Governor no. : F 002 A20 243

Cust. part No. : 3930142

Customer-spec. information
Customer : CDC
Motor : 4BNA3.9
Power KW : 50.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

G04

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.00
Tolerance mm : ± 0.05

| | | |
|--|---|-------|
| Del. quantity cm ³ /1000 strokes | : | 81.0 |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | + 1.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | + 3.0 |
| <hr/> | | |
| Spreed | | |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | 3.5 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | 6.0 |
| <hr/> | | |

| | | |
|--|---|--------|
| Rated speed rpm | : | 475 |
| | | |
| Rack travel in mm | : | 5.10 |
| Tolerance mm | : | + 0.10 |
| Del. quantity cm ³ /1000 strokes | : | 13.5 |
| Tolerance cm ³ /1000 strokes | : | + 2.0 |
| Check tolerance cm ³ /1000S. | : | + 4.5 |
| Spreed | | |
| Tolerance cm ³ /1000 strokes | : | 3.5 |
| Check tolerance cm ³ /1000S. | : | 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|---|---|--------|
| control lever position degree | : | - 3 |
| Rated speed rpm | : | 800 |
| | | |
| Rack travel in mm | : | 0.50 |
| Tolerance mm | : | + 0.20 |
| | | |
| governor spring pre-tension click setting x | : | 4.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1100 |
|-----------------|---|------|

| | | |
|--|---|-------|
| Aneroid pressure hPa | : | - |
| Del. quantity cm ³ /1000 strokes | : | 81.0 |
| Tolerance cm ³ /1000 strokes | : | + 1.0 |
| Check tolerance cm ³ /1000S. | : | + 3.0 |
| Spreed | | |
| Tolerance cm ³ /1000 strokes | : | 3.5 |
| Check tolerance cm ³ /1000S. | : | 6.0 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 89.0 |
| tolerance degree | : | + 4.0 |

| | | |
|-----------------|---|------|
| RATED SPEED | | |
| rack travel mm | : | 8.20 |
| Rated speed rpm | : | 1175 |
| Tolerance 1/min | : | + 5 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1240 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 0.85 |
| Tolerance mm | : | + 0.55 |
| Rated speed rpm | : | 1350 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1245 |
| Tolerance 1/min | : | + 15 |

LOW IDLE

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 74.0 |
| tolerance degree | : | + 4.0 |

| | | |
|--------------------------|---|-------|
| Control lever difference | | |
| Grad | : | 15.0 |
| tolerance degree | : | + 6.0 |

Setting point w/out bumper spring

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 475 |
| rack travel mm | : | 4.60 |
| Tolerance mm | : | + 0.10 |

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 100 |
|-----------------|---|-----|

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 9.00
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 9.70
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 80.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.5

G06

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 063

Injection pump
Pump designation : PES4A95D320/3RS2927
EP type number : F 002 A10 017

Governor
Governor design. : RSV475...1100A2C943R
Governor no. : F 002 A20 244

Cust. part No. : 3931397

Customer-spec. information
Customer : CDC
Motor : 4BNA3.9
Power KW : 45.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 7.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 8.20
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 75.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 4.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 2.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 75.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 88.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 7.20
Rated speed rpm : 1175
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1215
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 73.0
tolerance degree : ± 4.0

Control lever difference
Grad : 15.0
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 4.10
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 4.60
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 8.20
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 9.20
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 69.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 4.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.5

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98
Test oil : ISO 4113

Combination No. : F 002 A0Z 064

Injection pump
Pump designation : PES4A95D320/3RS2927
EP type number : F 002 A10 017

Governor
Governor design. : RSV475...1000A2C944R
Governor no. : F 002 A20 245

Cust. part No. : 3933090

Customer-spec. information

Customer : CDC
Motor : 4BNA3.9
Power KW : 40.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

G10

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 6.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 8.05
Tolerance mm : ± 0.05

| | | |
|--|---|-------|
| Del. quantity cm ³ /1000 strokes | : | 70.5 |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | ± 1.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | ± 3.0 |
| <hr/> | | |
| Spread | | |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | 3.5 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | 6.0 |
| <hr/> | | |

| | | |
|--|---|--------|
| Rated speed rpm | : | 475 |
| Pack travel in mm | : | 4.75 |
| Tolerance mm | : | ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : | 13.5 |
| Tolerance cm ³ /1000 strokes | : | ± 2.0 |
| Check tolerance cm ³ /1000S. | : | ± 4.5 |
| Spread | | |
| Tolerance cm ³ /1000 strokes | : | 3.5 |
| Check tolerance cm ³ /1000S. | : | 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | | |
|---|---|--------|
| control lever position degree | : | - 3 |
| Rated speed rpm | : | 800 |
| Rack travel in mm | : | 0.50 |
| Tolerance mm | : | ± 0.20 |
| governor spring pre-tension click setting x | : | 3.75 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|-----------------|---|------|
| Rated speed rpm | : | 1000 |
|-----------------|---|------|

| | | |
|--|---|-------|
| Aneroid pressure hPa | : | - |
| Del. quantity cm ³ /1000 strokes | : | 70.5 |
| Tolerance cm ³ /1000 strokes | : | ± 1.0 |
| Check tolerance cm ³ /1000S. | : | ± 3.0 |
| Spread | | |
| Tolerance cm ³ /1000 strokes | : | 3.5 |
| Check tolerance cm ³ /1000S. | : | 6.0 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 87.0 |
| tolerance degree | : | ± 4.0 |

| | | |
|-------------------------------|---|------|
| RATED SPEED rack travel mm | : | 7.00 |
| Rated speed rpm | : | 1070 |
| Tolerance 1/min | : | ± 5 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1090 |
| Tolerance 1/min | : | ± 5 |

| | | |
|-----------------|---|--------|
| rack travel mm | : | 0.85 |
| Tolerance mm | : | ± 0.55 |
| Rated speed rpm | : | 1175 |

| | | |
|-----------------|---|------|
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1090 |
| Tolerance 1/min | : | ± 15 |

LOW IDLE

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 69.0 |
| tolerance degree | : | ± 4.0 |

| | | |
|----------------------------------|---|-------|
| Control lever difference Grad | : | 18.0 |
| tolerance degree | : | ± 6.0 |

Setting point w/out bumper spring

| | | |
|-----------------|---|--------|
| Rated speed rpm | : | 475 |
| rack travel mm | : | 4.25 |
| Tolerance mm | : | ± 0.10 |

| | | |
|-----------------|---|-----|
| Rated speed rpm | : | 100 |
|-----------------|---|-----|

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 4.75
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 8.05
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 9.15
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 67.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 4.75
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.5

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.98
Test oil : ISO 4113
Combination No. : F 002 A0Z 069
Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215
Governor
Governor design. : RSV500...1100A2C947R
Governor no. : F 002 A20 248

Cust. part No. : 3933623

Customer-spec. information

Customer : CDC
Motor : 6BTA
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 109.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 500

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1400

Del. quantity
cm³/1000 strokes : 109.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 13.00
Rated speed rpm : 1155
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1245
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 20.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 500
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 14.65
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 13.80
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 13.50
Tolerance mm : \pm 0.20

Pressure hPa : 600
rack travel mm : 12.00
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 132.5

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

rack travel mm : 13.80
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 82.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 500
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98
Test oil : ISO 4113

Combination No. : 0 402 046 872

Injection pump
Pump designation : PES6P120A320RS3337
EP type number : 0 412 026 770

Governor
Governor design. : RQV300...1250PA1246K
Governor no. : 0 421 815 480

Cust. part No. : CCEP 5155A 66-217

Customer-spec. information
Customer : RENAULT V.T.
Motor : MIDR 06-02-26 U4
Power KW : 111.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 135
Tolerance L/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 0.08
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference °CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 10.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -5.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1333
guide sleeve
travel mm : 10.40
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : \pm 0.20

Rated speed rpm : 900
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.77
Tolerance mm : \pm 0.25

Rated speed rpm : 1580
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1400

Rack travel in mm : 10.50
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00

Rated speed rpm : 1310
Tolerance 1/min : + 15

rack travel mm : -6.60
Rated speed rpm : 1405
Tolerance 1/min : + 5

rack travel mm : -10.10
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 242.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : < -4.80

Testing:

Rated speed rpm : 300
rack travel mm : -5.80
Tolerance mm : + 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750
rack travel mm : -1.60
Tolerance mm : + 0.10

Rated speed rpm : 350
rack travel mm : -2.45
Tolerance mm : + 0.20

Start interlock

Rated speed rpm : > 130
Rated speed rpm : < 245

Check
speed 1/min : > 110
Check
speed 1/min : < 255

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 104.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

rack travel mm : -2.45
Tolerance mm : + 0.20

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -5.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98
Test oil : ISO 4113

Combination No. : 0 402 646 675

Injection pump
Pump designation : PE6P120A320RS7299
EP type number : 0 412 626 885

Governor
Governor design. : RQV275...1000PA1337K
Governor no. : 0 421 815 554

Cust. part No. : 1322504

Customer spec. information
Customer : DAF
Motor : WS 268 M
Power KW : 268.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 250.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.10

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000s. : + 6.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1047
guide sleeve
travel mm : 7.35
Tolerance mm : + 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 2.04
Tolerance mm : + 0.20

Rated speed rpm : 820
guide sleeve
travel mm : 5.14
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.34
Tolerance mm : + 0.25

Rated speed rpm : 1282
guide sleeve
travel mm : 12.00
Tolerance mm : + 0.25

Rated speed rpm : 1370
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1248

Rack travel in mm : 12.80
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

CONTROL LEVER

control lever
position degree : 110.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.55
Rated speed rpm : 1042
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1150
Tolerance 1/min : + 15

rack travel mm : 0.70
Tolerance mm : + 0.70
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 75.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : > 7.50

Testing:

Rated speed rpm : 275
rack travel mm : 5.10
Tolerance mm : ± 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 980
rack travel mm : 13.55
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.05
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 12.35
Tolerance mm : ± 0.10

Rated speed rpm : 500
rack travel mm : 11.90
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 980
Pressure hPa : 1500
rack travel mm : 13.55
Tolerance mm : ± 0.05

Rated speed rpm : 980
Pressure hPa : -
rack travel mm : 8.20
Tolerance mm : ± 0.10

MEASUREMENT

Rated speed rpm : 980
Pressure hPa : 820

rack travel mm : 12.25
Tolerance mm : ± 0.05

Pressure hPa : 400
rack travel mm : 9.40
Tolerance mm : ± 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 263.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 12.35
Tolerance mm : ± 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : 5.10
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed

Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.98
Test oil : ISO 4113

Combination No. : 0 402 646 704

Injection pump
Pump designation : PE6P120A320LS7904
EP type number : 0 412 626 961

Governor
Governor design. : RQV300...950PA1377
Governor no. : 0 421 814 208

Cust. part No. : 04223929 KY

Customer spec. information
Customer : KHD
Motor : BF6M1015/C
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 240
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 300.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.40
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 999
guide sleeve
travel mm : 10.19
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.13
Tolerance mm : \pm 0.20

Rated speed rpm : 700
guide sleeve
travel mm : 5.10
Tolerance mm : \pm 0.25

Rated speed rpm : 1160
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

Rated speed rpm : 1050

Rack travel in mm : 12.40
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 1700

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 122.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.40
Rated speed rpm : 985
Tolerance 1/min : \pm 5

rack travel mm : 4.50
Rated speed rpm : 1050
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300
rack travel mm : 4.70
Tolerance mm : + 0.10

Rated speed rpm : 345

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.40
Tolerance mm : + 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 400
Pressure hPa : 1700
rack travel mm : 13.40
Tolerance mm : + 0.05

Rated speed rpm : 400
Pressure hPa : -
rack travel mm : 8.40
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 550
rack travel mm : 10.20
Tolerance mm : + 0.20

Pressure hPa : 1000
rack travel mm : 12.50
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 400
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.40
Tolerance mm : + 0.30
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 24.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.70
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.98
Test oil : ISO 4113

Combination No. : 0 402 646 887AB

Injection pump
Pump designation : PE6P120A720RS7188
: -10
EP type number : 0 412 626 924

Governor
Governor design. : RQV200...950PA725-7
Governor no. : 0 421 813 803

Cust. part No. : 1333122-1

Customer-spec. information
Customer : SCANIA
Motor : DSC 11 23

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 190
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.85
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 252.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 4.70
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 16.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1045
guide sleeve
travel mm : 8.50
Tolerance mm : + 0.10

Rated speed rpm : 225
guide sleeve
travel mm : 1.40
Tolerance mm : + 0.20

Rated speed rpm : 650
guide sleeve
travel mm : 4.80

Tolerance mm : + 0.30

Rated speed rpm : 350
guide sleeve
travel mm : 2.70
Tolerance mm : + 0.30

Rated speed rpm : 1125
guide sleeve
travel mm : 9.50
Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1150

Rack travel in mm : 9.50
Tolerance mm : + 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 252.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : + 4.0

control lever
position degree : 114.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.80
Rated speed rpm : 995
Tolerance 1/min : + 5
Check
speed 1/min : + 10

rack travel mm : 4.00
Rated speed rpm : 1125
Tolerance 1/min : \pm 15
Check
speed 1/min : \pm 20

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 64.0
tolerance degree : \pm 4.0

control lever
position degree : 10.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150
CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : \pm 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 950
rack travel mm : 13.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 270
rack travel mm : 10.90
Tolerance mm : \pm 0.15

Pressure hPa : 440
rack travel mm : 11.90
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 237.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 128.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.40
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.98
Test oil : ISO 4113

Combination No. : 0 402 646 937AB

Injection pump
Pump designation : PE6P120A720RS7188
: -100
EP type number : 0 412 626 925

Governor
Governor design. : RQV200...950PA725-7
Governor no. : 0 421 813 803

Cust. part No. : 1333121-1

Customer-spec. information
Customer : SCANIA
Motor : DSC11 21

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 104

Opening pressure
bar : 251.5
Tolerance bar : ± 1.5

H03

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.75
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 220.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

| | |
|--|----------|
| Rated speed rpm | : 250 |
| Rack travel in mm | : 4.70 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 16.0 |
| Tolerance cm ³ /1000 strokes | : ± 3.0 |
| Check tolerance cm ³ /1000S. | : ± 6.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 4.0 |
| Check tolerance cm ³ /1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|---------------------------|----------|
| Rated speed rpm | : 1045 |
| guide sleeve travel mm | : 8.50 |
| Tolerance mm | : ± 0.10 |
| Rated speed rpm | : 225 |
| guide sleeve travel mm | : 1.40 |
| Tolerance mm | : ± 0.20 |
| Rated speed rpm | : 650 |
| guide sleeve travel mm | : 4.80 |
| Tolerance mm | : ± 0.30 |
| Rated speed rpm | : 350 |

| | |
|---------------------------|----------|
| guide sleeve travel mm | : 2.70 |
| Tolerance mm | : ± 0.30 |

| | |
|---------------------------|----------|
| Rated speed rpm | : 1125 |
| guide sleeve travel mm | : 9.50 |
| Tolerance mm | : ± 0.20 |

GUIDE SLEEVE POSITION

| | |
|----------------------------------|--------|
| control lever position degree | : - 1 |
| Rated speed rpm | : 1150 |

| | |
|-------------------|----------|
| Rack travel in mm | : 9.50 |
| Tolerance mm | : ± 2.50 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 700 |
| Aneroid pressure hPa | : - |
| Del. quantity cm ³ /1000 strokes | : 220.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 60.0 |
| tolerance degree | : ± 4.0 |
| control lever position degree | : 112.0 |
| tolerance degree | : ± 4.0 |

| | |
|----------------------|---------|
| RATED SPEED | |
| rack travel mm | : 11.70 |
| Rated speed rpm | : 995 |
| Tolerance 1/min | : ± 5 |
| Check speed 1/min | : ± 10 |
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1120 |
| Tolerance 1/min | : ± 15 |

Check
speed 1/min : + 20
rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 62.0
tolerance degree : + 4.0

control lever
position degree : 10.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 6.07

Testing:

Rated speed rpm : 250
rack travel mm : 4.70
Tolerance mm : + 0.10

Rated speed rpm : 275

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.75
Tolerance mm : + 0.05

Rated speed rpm : 950
rack travel mm : 12.75
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.75
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.60

H05

Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 270
rack travel mm : 11.05
Tolerance mm : + 0.15

Pressure hPa : 440
rack travel mm : 12.00
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 209.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.40
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97
Test oil : ISO 4113

Combination No. : 0 402 678 836

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RSV550...1050POA672
Governor no. : 0 421 833 591

Cust. part No. : 0270746402

Customer spec. information
Customer : MB-NFZ
Motor : OM442LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 225
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.00
Tolerance mm : ± 1.00

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance *NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.60
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure

hPa : 1200

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 88.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1110
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1071
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1111
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

Rated speed rpm : 1072
Tolerance 1/min : \pm 1
rack travel mm : 14.60

Rated speed rpm : 1112
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1200

Rated speed rpm : 1073
Tolerance 1/min : + 1
rack travel mm : 14.60

Rated speed rpm : 1113
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1200

Rated speed rpm : 1074
Tolerance 1/min : + 1
rack travel mm : 14.60

Rated speed rpm : 1114
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1200

Rated speed rpm : 1175
Tolerance 1/min : + 1
rack travel mm : 14.60

Rated speed rpm : 1115
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

H09

Testing:

Rated speed rpm : 550
rack travel mm : 4.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : + 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 15.60
Tolerance mm : + 0.05

Rated speed rpm : 600
rack travel mm : 15.60
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 450
Pressure hPa : 1200
rack travel mm : 15.60
Tolerance mm : + 0.10

Rated speed rpm : 450
Pressure hPa : -
rack travel mm : 9.75
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 450
Pressure hPa : 600
rack travel mm : 12.20
Tolerance mm : + 0.15

Pressure hPa : 800
rack travel mm : 14.10
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200

Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 287.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 162.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 4.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97
Test oil : ISO 4113

Combination No. : 0 402 678 837

Injection pump
Pump designation : PE8P120A320LS7911
EP type number : 0 412 628 926

Governor
Governor design. : RSV550...1050POA679
Governor no. : 0 421 833 598

Cust. part No. : 027 074 6502

Customer-spec. information
Customer : MB-NFZ
Motor : OM442LA, Euro
Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 227.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 4.20
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure
hPa : 1100

Del. quantity
cm³/1000 strokes : 227.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 87.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1085
Tolerance 1/min : + 1
rack travel mm : 13.50

Rated speed rpm : 1125
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1087
Tolerance 1/min : + 1
rack travel mm : 13.50

Rated speed rpm : 1127
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1089
Tolerance 1/min : + 1
rack travel mm : 13.50

Rated speed rpm : 1129
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1091
Tolerance 1/min : \pm 1
rack travel mm : 13.50

Rated speed rpm : 1131
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1093
Tolerance 1/min : \pm 1
rack travel mm : 13.50

Rated speed rpm : 1133
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

Rated speed rpm : 1095
Tolerance 1/min : \pm 1
rack travel mm : 13.50

Rated speed rpm : 1135
Tolerance 1/min : \pm 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 550
rack travel mm : 4.20
Tolerance mm : \pm 0.10

H13

rack travel mm : 2.00
Rated speed rpm : 580
Tolerance 1/min : \pm 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 450
Pressure hPa : 1100
rack travel mm : 15.00
Tolerance mm : \pm 0.10

Rated speed rpm : 450
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 450
Pressure hPa : 750
rack travel mm : 14.30
Tolerance mm : \pm 0.20

Pressure hPa : 550
rack travel mm : 12.50
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1100
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 248.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 166.0
Tolerance
cm³/1000 strokes : +- 2.0
Check tolerance
cm³/1000S. : +- 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 550

Rack travel in mm : 4.20
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98
Test oil : ISO 4113
Combination No. : 0 402 746 638
Injection pump
Pump designation : PES6P120A320RS7449
EP type number : 0 412 726 974
Governor
Governor design. : RQ275/1050PA1373
Governor no. : 0 421 801 831

Cust. part No. : CCEP 5171-66/254

Customer-spec. information

Customer : RENAULT V.I.
Motor : MI7R062045 C41
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 220
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.95
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 176.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1125
guide sleeve
travel mm : 7.06
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 2.38
Tolerance mm : \pm 0.20

Rated speed rpm : 1050
guide sleeve
travel mm : 6.70
Tolerance mm : \pm 0.10

Rated speed rpm : 668
guide sleeve
travel mm : 6.18
Tolerance mm : \pm 0.10

Rated speed rpm : 377
guide sleeve
travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 460
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1310
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

Rated speed rpm : 874
guide sleeve
travel mm : 6.52
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 500

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 276.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : -7.70
Rated speed rpm : 1210
Tolerance 1/min : \pm 15

rack travel mm : -11.20
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 256.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $<$ -4.30

Testing:

Rated speed rpm : 275
rack travel mm : -6.20
Tolerance mm : \pm 0.10

rack travel mm : -9.70
Rated speed rpm : 365
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600
rack travel mm : 0.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 0.80
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -1.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 280
rack travel mm : 0.35
Tolerance mm : \pm 0.15

Pressure hPa : 160
rack travel mm : -0.40
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 190
Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 193.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 149.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -6.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98
Test oil : ISO 4113
Combination No. : 0 402 746 645
Injection pump
Pump designation : PES6P120A320RS7364
EP type number : 0 412 726 930
Governor
Governor design. : RQV300...1050PA1204
Governor no. : 0 421 814 123

Cust. part No. : CCEP 5148A 66-236

Customer spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.20.45D41
Power kW : 219.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

H19

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.40
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.90
Tolerance mm : ± 0.05

BASIC SETTING

| | | |
|--|---|-------|
| Rated speed rpm | : | 600 |
| <hr/> | | |
| Del. quantity cm ³ /1000 strokes | : | 290.0 |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | ± 1.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | ± 4.0 |
| <hr/> | | |
| Spreed | | |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | 5.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | 9.0 |
| <hr/> | | |

| | | |
|--|---|--------|
| Rated speed rpm | : | 300 |
| <hr/> | | |
| Rack travel in mm | : | -7.60 |
| Tolerance mm | : | ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : | 26.0 |
| Tolerance cm ³ /1000 strokes | : | ± 2.0 |
| Check tolerance cm ³ /1000S. | : | ± 5.0 |
| <hr/> | | |
| Spreed | | |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | 8.0 |
| Check tolerance cm ³ /1000S. | : | 12.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 1135 |
| guide sleeve travel mm | : | 8.45 |
| Tolerance mm | : | ± 0.25 |
| <hr/> | | |
| Rated speed rpm | : | 300 |
| guide sleeve travel mm | : | 1.33 |
| Tolerance mm | : | ± 0.25 |
| <hr/> | | |
| Rated speed rpm | : | 752 |
| guide sleeve travel mm | : | 6.09 |
| Tolerance mm | : | ± 0.25 |
| <hr/> | | |
| Rated speed rpm | : | 365 |

H2O

| | | |
|---------------------------|---|--------|
| guide sleeve travel mm | : | 2.40 |
| Tolerance mm | : | ± 0.25 |
| <hr/> | | |
| Rated speed rpm | : | 415 |
| guide sleeve travel mm | : | 3.28 |
| Tolerance mm | : | ± 0.25 |
| <hr/> | | |
| Rated speed rpm | : | 460 |
| guide sleeve travel mm | : | 3.86 |
| Tolerance mm | : | ± 0.25 |
| <hr/> | | |
| Rated speed rpm | : | 1460 |
| guide sleeve travel mm | : | 11.50 |
| Tolerance mm | : | ± 0.50 |

GUIDE SLEEVE POSITION

| | | |
|----------------------------------|---|--------|
| control lever position degree | : | - 1 |
| Rated speed rpm | : | 1230 |
| <hr/> | | |
| Rack travel in mm | : | 11.70 |
| Tolerance mm | : | ± 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|--|---|-------|
| Rated speed rpm | : | 600 |
| Aneroid pressure hPa | : | 1000 |
| Del. quantity cm ³ /1000 strokes | : | 290.0 |
| Tolerance cm ³ /1000 strokes | : | ± 1.0 |
| Check tolerance cm ³ /1000S. | : | ± 4.0 |
| <hr/> | | |
| Spreed | | |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | 5.0 |
| Check tolerance cm ³ /1000S. | : | 9.0 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 303.0 |
| tolerance degree | : | ± 4.0 |

RATED SPEED

| | | |
|-----------------|---|-------|
| rack travel mm | : | -1.00 |
| Rated speed rpm | : | 1140 |
| Tolerance 1/min | : | ± 5 |

rack travel mm : -9.90
Rated speed rpm : 1310
Tolerance 1/min : \pm 15

rack travel mm : -13.40
Tolerance mm : \pm 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 267.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : \leq -5.10

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 240
rack travel mm : -1.45
Tolerance mm : \pm 0.15

Pressure hPa : 400
rack travel mm : -0.50
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 298.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 166.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -7.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98

Test oil : ISO 4113

Combination No. : 0 402 746 650

Injection pump

Pump designation : PES6P120A32ORS7344

EP type number : 0 412 726 914

Governor

Governor design. : RQ275/1050PA999-6

Governor no. : 0 421 801 785

Cust. part No. : CCEP 5151A 66-230

Customer spec. information

Customer : RENAULT V.I.

Motor : MIDR 062045 M41

Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity

min. l/h : 145

Tolerance l/h : ± 10.0

Test nozzle holder

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.50

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 11.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.15

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.

mm : 21.00

and maximum rack

travel : 11.00

Difference °CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 11.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 287.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 37.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1131
guide sleeve
travel mm : 6.38
Tolerance mm : \pm 0.10

H24

Rated speed rpm : 275
guide sleeve
travel mm : 0.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 396
guide sleeve
travel mm : 2.99
Tolerance mm : \pm 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1350
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 287.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 274.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1135
Tolerance 1/min : \pm 5

rack travel mm : -7.60
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

rack travel mm : -11.10
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 251.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $<$ -5.80

Testing:

Rated speed rpm : 275
rack travel mm : -7.00
Tolerance mm : \pm 0.10

rack travel mm : -9.50
Rated speed rpm : 365
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

H25

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -3.65
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 560
rack travel mm : -1.25
Tolerance mm : \pm 0.15

Pressure hPa : 320
rack travel mm : -2.75
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -7.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98
Test oil : ISO 4113
Combination No. : 0 402 746 994
Injection pump
Pump designation : PES6P120A320RS7344
EP type number : 0 412 726 914
Governor
Governor design. : RGV275...1000PA1161
Governor no. : 0 421 814 100

Cust. part No. : CCEP 5143A 66-231

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 062045 E/41
Power KW : 249.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference °CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1086
guide sleeve
travel mm : 8.09
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.66

Tolerance mm : \pm 0.25

Rated speed rpm : 793
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.25

Rated speed rpm : 343
guide sleeve
travel mm : 2.33
Tolerance mm : \pm 0.25

Rated speed rpm : 393
guide sleeve
travel mm : 2.95
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.72
Tolerance mm : \pm 0.25

Rated speed rpm : 1410
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1235

Rack travel in mm : 11.70
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1080
Tolerance 1/min : \pm 5

rack travel mm : -8.60
Rated speed rpm : 1215
Tolerance 1/min : \pm 15

rack travel mm : -12.10
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $<$ -5.70

Testing:

Rated speed rpm : 300
rack travel mm : -7.70
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1000
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500

Pressure hPa : -
rack travel mm : -3.35
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320
rack travel mm : -2.65
Tolerance mm : \pm 0.15

Pressure hPa : 640
rack travel mm : -0.70
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 284.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 124.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75

Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -7.70
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.98
Test oil : ISO 4113

Combination No. : 0 402 846 079

Injection pump
Pump designation : PE6P120A320RS8051
EP type number : 0 412 826 037

Governor
Governor design. : RQV300...1050PA1141
Governor no. : 0 421 814 091

Cust. part No. : 11031994 Ppe = 082

Customer-spec. information
Customer : VCE
Motor : TD122KFE
Power KW : 297.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 298.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 325

Rack travel in mm : 3.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1131

guide sleeve
travel mm : 8.63
Tolerance mm : ± 0.15

Rated speed rpm : 325

guide sleeve
travel mm : 2.04
Tolerance mm : ± 0.20

Rated speed rpm : 1038
guide sleeve
travel mm : 7.03
Tolerance mm : ± 0.25

Rated speed rpm : 490
guide sleeve
travel mm : 4.65
Tolerance mm : ± 0.25

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1190

Rack travel in mm : 12.20
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 298.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 64.0
tolerance degree : ± 4.0

control lever
position degree : 122.0
tolerance degree : ± 4.0

RATED SPEED
 rack travel mm : 12.10
 Rated speed rpm : 1120
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1180
 Tolerance 1/min : + 15

 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1260

LOW IDLE

control lever
 position degree : 64.0
 tolerance degree : + 4.0

control lever
 position degree : 12.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 325
 rack travel mm : 3.60
 Tolerance mm : + 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 700
 rack travel mm : 13.10
 Tolerance mm : + 0.05

Rated speed rpm : 700
 rack travel mm : 12.40
 Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

J05

Pressure hPa : 1500
 rack travel mm : 14.00
 Tolerance mm : + 0.25

Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : 10.00
 Tolerance mm : + 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 850
 rack travel mm : 2.90
 Tolerance mm : + 0.20

Pressure hPa : 300
 rack travel mm : 0.25
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : > 230

Check
 speed 1/min : > 80
 Check
 speed 1/min : > 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 269.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0
 Speed
 Tolerance
 cm³/1000 strokes : 10.0
 Check tolerance
 cm³/1000S. : 14.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 188.0
 Tolerance
 cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : +- 0.50
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : +- 15.0
Check tolerance
cm³/1000S. : +- 19.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 3.60
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98
Test oil : ISO 4113
Combination No. : 0 402 946 027
Injection pump
Pump designation : PES6P120A320RS8047
EP type number : 0 412 926 029
Governor
Governor design. : RGV275...1250PA1312K
Governor no. : 0 421 815 966

Cust. part No. : CCEP 5160A 66-244

Customer spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.02.26L71
Power KW : 141.7

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 3.25

CRT ZERO POSITION

Rack travel in mm : 12.10
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 183.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -7.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 39.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1340
guide sleeve
travel mm : 9.96
Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

Rated speed rpm : 923
guide sleeve
travel mm : 6.76
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1430

Rack travel in mm : 11.10
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 295.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00

Rated speed rpm : 1330
Tolerance 1/min : + 15

rack travel mm : -8.10
Rated speed rpm : 1470
Tolerance 1/min : + 5

rack travel mm : -11.60
Tolerance mm : + 0.55
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 241.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : < -5.80

Testing:

Rated speed rpm : 325
rack travel mm : -7.20
Tolerance mm : + 0.10

Rated speed rpm : 325

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 650
rack travel mm : -2.10
Tolerance mm : + 0.10

Rated speed rpm : 350
rack travel mm : -3.25
Tolerance mm : + 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1600
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -

J09

rack travel mm : -4.70
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 240
rack travel mm : -3.10
Tolerance mm : + 0.20

Pressure hPa : 520
rack travel mm : -1.20
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
Rated speed rpm : < 240

Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 172.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

rack travel mm : -3.25
Tolerance mm : + 0.25

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : -7.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.02.98
Test oil : ISO 4113

Combination No. : 9 400 087 504

Injection pump
Pump designation : PES5P120A720LS7453
EP type number : F 000 400 203

Governor
Governor design. : RQV300...950PA1264
Governor no. : 9 420 080 393

Cust. part No. : 0270740002

Customer spec. information
Customer : MBB
Motor : OM 449 LA-EUROII
Power KW : 235.4

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.60
Tolerance mm : ± 0.05

Del. quantity
cm3/1000 strokes : 265.0

Tolerance
cm3/1000 strokes : ± 1.0

Check tolerance
cm3/1000S. : ± 4.0

Speed

Tolerance
cm3/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700
guide sleeve
travel mm : 5.45
Tolerance mm : + 0.25

Rated speed rpm : 1050
guide sleeve
travel mm : 7.80
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 0.75
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.55
Tolerance mm : + 0.25

Rated speed rpm : 1165
guide sleeve
travel mm : 9.45
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1120

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 265.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 115.0
tolerance degree : + 6.0

RATED SPEED
rack travel mm : 12.55
Rated speed rpm : 1035
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1140
Tolerance 1/min : + 15

rack travel mm : 0.50
tolerance mm : + 0.50
Rated speed rpm : 1250

LOW IDLE

control lever
position degree : 78.0
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 10.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.20
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 950
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 14.00
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 14.00
Tolerance mm : \pm 0.05

Rated speed rpm : 850
rack travel mm : 13.90
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.60
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 500
rack travel mm : 1.05
Tolerance mm : \pm 0.15

Pressure hPa : 900
rack travel mm : 2.60
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80

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Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 296.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure

hPa : 1500
Rated speed rpm : 800
rack travel mm : 14.00
Tolerance mm : \pm 0.05
Del. quantity
cm³/1000 strokes : 285.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 141.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 252.5
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.20
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.11.97

Test oil : ISO 4113

Combination No. : F 000 409 007

Injection pump

Pump designation : PES6P110A720RS3389

EP type number : F 000 400 002

Governor

Governer design. : RQV300...1300PA1343K

Governer no. : F 000 420 500

Cust. part No. : 0280743002

Customer-spec. information

Customer : MBB

Motor : OM366LA-EURO II

Power KW : 150.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holder assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.30

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 14.30

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 122.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000s. : ± 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 300

Rack travel in mm : 5.50

Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : + 5.0

Speed

Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350
guide sleeve
travel mm : 8.50
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : + 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.05
Tolerance mm : + 0.25

Rated speed rpm : 700
guide sleeve
travel mm : 4.35
Tolerance mm : + 0.25

Rated speed rpm : 1780
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 122.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 109.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 13.30
Rated speed rpm : 1350
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1515
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 64.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.50
Tolerance mm : + 0.20

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 14.30
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 12.90
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
rack travel mm : 13.85
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 13.25
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 13.10
Tolerance mm : \pm 0.10

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 12.90
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 300
rack travel mm : 1.20
Tolerance mm : \pm 0.05

Pressure hPa : 600
rack travel mm : 3.60
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 180

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 220

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 96.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
rack travel mm : 13.85
Tolerance mm : \pm 0.05
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 99.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 97.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 136.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.50
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 31.10.97
Test oil : ISO 4113

Combination No. : F 000 409 104

Injection pump
Pump designation : PES6P120A120RS7451
EP type number : F 000 400 202

Governor
Governor design. : RQV350...1100PA1375K
Governor no. : F 000 420 501

Cust. part No. :

Customer spec. information
Customer : CUMMINS
Motor : 6CTAA
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.30
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 7.70
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.30
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 164.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1159
guide sleeve
travel mm : 10.27
Tolerance mm : \pm 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.93
Tolerance mm : \pm 0.20

Rated speed rpm : 710
guide sleeve
travel mm : 5.79
Tolerance mm : \pm 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 4.28
Tolerance mm : \pm 0.25

Rated speed rpm : 1380
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1200

Rack travel in mm : 12.30
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 164.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 69.0
tolerance degree : \pm 4.0

control lever
position degree : 123.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.30
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

Check
 speed 1/min : + 20

rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 73.0
 tolerance degree : + 4.0

control lever
 position degree : 21.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
 CRT mm min. : > 7.70

Testing:

Rated speed rpm : 350
 rack travel mm : 4.80
 Tolerance mm : + 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1100
 rack travel mm : 13.30
 Tolerance mm : + 0.05

Rated speed rpm : 750
 rack travel mm : 12.95
 Tolerance mm : + 0.10

Rated speed rpm : 900
 rack travel mm : 13.05
 Tolerance mm : + 0.15

Rated speed rpm : 600
 rack travel mm : 12.70
 Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1100
 Pressure hPa : 1500
 rack travel mm : 13.30
 Tolerance mm : + 0.05

Rated speed rpm : 1100
 Pressure hPa : -

MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 170
 rack travel mm : 1.20
 Tolerance mm : + 0.20

Pressure hPa : 330
 rack travel mm : 2.20
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 280

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1500
 Rated speed rpm : 750
 Del. quantity
 cm³/1000 strokes : 155.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Spread
 Tolerance
 cm³/1000 strokes : 12.0
 Check tolerance
 cm³/1000S. : 16.0

rack travel mm : 13.05
 Tolerance mm : + 0.15

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 107.0

Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 4.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.11.97
Test oil : ISO 4113

Combination No. : F 000 409 105

Injection pump
Pump designation : PES6P120A120RS7350
EP type number : 0 412 726 921

Governor
Governor design. : RQV400...1150PA1376K
Governor no. : F 000 420 502

Cust. part No. : 3933298

Customer spec. information
Customer : CUMMINS
Motor : 6BTAA
Power KW : 145.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

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x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 5.75
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 167.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 420

Rack travel in mm : 6.10

Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1250
guide sleeve
travel mm : 7.10
Tolerance mm : + 0.10

Rated speed rpm : 400
guide sleeve
travel mm : 1.50
Tolerance mm : + 0.10

Rated speed rpm : 800
guide sleeve
travel mm : 4.50
Tolerance mm : + 0.20

Rated speed rpm : 550
guide sleeve
travel mm : 3.30
Tolerance mm : + 0.20

Rated speed rpm : 1500
guide sleeve
travel mm : 9.40
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 167.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : + 6.0

RATED SPEED
rack travel mm : 13.00
Rated speed rpm : 1300
Tolerance 1/min : + 15
Check
speed 1/min : + 20

rack travel mm : 4.00
Rated speed rpm : 1465
Tolerance 1/min : + 5
Check
speed 1/min : + 10

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 6.0

Control lever difference
Grad : 46.0

tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : $>$ 8.90

Testing:

Rated speed rpm : 420
rack travel mm : 6.10
Tolerance mm : \pm 0.20

Rated speed rpm : 420

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.00
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 12.60
Tolerance mm : \pm 0.20

Rated speed rpm : 1250
rack travel mm : 14.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1150
Pressure hPa : 800
rack travel mm : 14.00
Tolerance mm : \pm 0.05

Rated speed rpm : 1150
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 1150
Pressure hPa : 250
rack travel mm : 1.10
Tolerance mm : \pm 0.20

Pressure hPa : 470
rack travel mm : 3.10
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 325

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 335

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

rack travel mm : 14.00
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 1150
Del. quantity
cm³/1000 strokes : 80.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.75
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 420
Rack travel in mm : 6.10
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97
Test oil : ISO 4113

Combination No. : F 000 409 106

Injection pump
Pump designation : PES6P120A120RS7416
EP type number : 0 412 726 959

Governor
Governor design. : RQV400...1250PA1378K
Governor no. : F 000 420 503

Cust. part No. : 3933297

Customer-spec. information
Customer : CUMMINS
Motor : 6STA-A
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : +- 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : +- 1.0

Prestroke mm : 3.60
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 6.25
Tolerance : +- 0.50
Check
tolerance *NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 160.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 420

Rack travel in mm : 6.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1329
guide sleeve
travel mm : 7.83
Tolerance mm : + 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 1.44
Tolerance mm : + 0.20

Rated speed rpm : 939
guide sleeve
travel mm : 5.18
Tolerance mm : + 0.25

Rated speed rpm : 640
guide sleeve
travel mm : 3.56
Tolerance mm : + 0.25

Rated speed rpm : 1690
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 800

Del. quantity
cm³/1000 strokes : 160.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : + 6.0

RATED SPEED

rack travel mm : 12.60
Rated speed rpm : 1325
Tolerance 1/min : + 15

rack travel mm : 4.00
Rated speed rpm : 1480
Tolerance 1/min : + 5

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 6.0

Control lever difference
Grad : 46.0
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 300
CRT mm min. : > 5.80

Testing:

Rated speed rpm : 420
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.85
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 800
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 1250
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 1250
Pressure hPa : 180
rack travel mm : 1.10
Tolerance mm : \pm 0.05

Pressure hPa : 340
rack travel mm : 3.30
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 280

Check
speed 1/min : > 80
Check
speed 1/min : < 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 131.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 11.60
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 88.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 14.10
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 420
Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.98
Test oil : ISO 4113
Combination No. : F 000 409 201
Injection pump
Pump designation : PES6A95D410RS2918
EP type number : F 000 400 400
Governor
Governor design. : RQV300...1300AB1324
Governor no. : F 000 420 301

Cust. part No. : 3760747202

Customer-spec. information
Customer : MBB
Motor : OM 366 A
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 81.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 9.20

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500
guide sleeve
travel mm : 8.95
Tolerance mm : \pm 0.05

Rated speed rpm : 300
guide sleeve
travel mm : 1.05
Tolerance mm : \pm 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 2.55
Tolerance mm : \pm 0.25

Rated speed rpm : 750
guide sleeve
travel mm : 4.65
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1460

Rack travel in mm : 16.50

K04

Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300

Aneroid pressure
hPa : 800

Del. quantity
cm³/1000 strokes : 81.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 111.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 1365
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1505
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1640

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 9.80

Testing:

Rated speed rpm : 300

rack travel mm : 9.20
Tolerance mm : + 0.10
Rated speed rpm : 585

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.25
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 12.05
Tolerance mm : + 0.05

Rated speed rpm : 950
rack travel mm : 11.50
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 12.05
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 12.00
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 550
rack travel mm : 1.80
Tolerance mm : + 0.10

Pressure hPa : 350
rack travel mm : 0.80
Tolerance mm : + 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

K05

FUEL DELIVERY CHARACTERISTICS

rack travel mm : 11.50
Tolerance mm : + 0.05

Aneroid pressure
hPa : 800
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 81.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 42.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 3.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 78.0
Tolerance
cm³/1000 strokes : + 7.5
Check tolerance
cm³/1000s. : + 10.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 9.20
Tolerance mm : \pm 0.10
Del. quantity
cm3/1000 strokes : 19.0
Tolerance
cm3/1000 strokes : \pm 2.0
Check tolerance
cm3/1000S. : \pm 4.5
Speed
Tolerance
cm3/1000 strokes : 5.5
Check tolerance
cm3/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98
Test oil : ISO 4113

Combination No. : 0 400 866 214

Injection pump
Pump designation : PES6A100D320/3RS2691
: -4
EP type number : 9 410 230 030

Governor
Governor design. : RSV450...1100A0C2190
: -84R
Governor no. : 0 420 233 323

Cust. part No. : 3921095

Customer-spec. information

Customer : CDC
Motor : 6CT830
Power KW : 134.2

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

K07

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

°NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 104.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 450

Rack travel in mm : 5.80
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 18.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 104.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.20
Rated speed rpm : 1145
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1225
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 85.0
tolerance degree : ± 4.0

Control lever difference
Grad : 18.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 450
rack travel mm : 5.30
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT min. : > 19.00

Testing:

Rated speed rpm : 450
rack travel mm : 5.80
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.25
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 12.10
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 113.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 15.0

LOW IDLE

Rated speed rpm : 450
Rack travel in mm : 5.80
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 18.5

K09

Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98
Test oil : ISO 4113

Combination No. : 0 402 076 817

Injection pump
Pump designation : PES6P120A72ORS3367
EP type number : 0 412 026 788

Governor
Governor design. : RSV525...1000P2A640
: -1
Governor no. : 0 421 833 604

Cust. part No. : RE71286

Customer-spec. information
Customer : DEERE
Motor : 6081HT001
Power kW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

K10

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : C-60-120-180-240
: -300

Start of delivery mark

*NW after s.o.d. : 7.50
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack
travel : 14.00
Difference * CS : 2.50

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.00
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 174.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 525

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance

cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1400

Del. quantity
cm³/1000 strokes : 174.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance

cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 87.5
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.00

Rated speed rpm : 1070
Tolerance 1/min : \pm 5

rack travel mm : 4.00

Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : 0.85

Tolerance mm : \pm 0.55
Rated speed rpm : 1200

rack travel mm : 4.00

Rated speed rpm : 1115
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 525

rack travel mm : 4.60
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT min. : > 19.00

Testing:

Rated speed rpm : 525
rack travel mm : 5.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.00
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1400

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.25
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 975
rack travel mm : 13.40
Tolerance mm : \pm 0.20

Pressure hPa : 830
rack travel mm : 12.70
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 197.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 525
Rack travel in mm : 5.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98
Test oil : ISO 4113

Combination No. : 0 402 736 906

Injection pump
Pump designation : PES6P120A12ORS7416
EP type number : 0 412 726 959

Governor
Governor design. : RQV400...1250PA1060
: -4K
Governor no. : 0 421 815 514

Cust. part No. : 3928146

Customer-spec. information
Customer : CDC
Motor : 6BTA-A
Power kW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 6.25
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 420

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1329

guide sleeve

travel mm : 7.83

Tolerance mm : + 0.15

Rated speed rpm : 400

guide sleeve

travel mm : 1.44

Tolerance mm : + 0.20

Rated speed rpm : 939

guide sleeve

travel mm : 5.18

Tolerance mm : + 0.25

Rated speed rpm : 640

guide sleeve

travel mm : 3.56

Tolerance mm : + 0.25

Rated speed rpm : 1690

guide sleeve

travel mm : 11.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever

position degree : VH

Rated speed rpm : 1390

Rack travel in mm : 12.60

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : 1200

Del. quantity
cm³/1000 strokes : 159.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever

position degree : 120.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1325

Tolerance 1/min : + 15

rack travel mm : 4.00

Rated speed rpm : 1475

Tolerance 1/min : + 5

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 73.5
tolerance degree : \pm 4.0

Control lever difference
Grad : 46.5
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
CRT mm min. : $>$ 5.80

Testing:

Rated speed rpm : 420
rack travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.65
Tolerance mm : \pm 0.05

Rated speed rpm : 800
rack travel mm : 11.85
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1200

Rated speed rpm : 1250
Pressure hPa : -
rack travel mm : 10.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 375
rack travel mm : 12.50
Tolerance mm : \pm 0.30

Pressure hPa : 260
rack travel mm : 11.30
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 200
Rated speed rpm : $<$ 340

Check
speed 1/min : $>$ 190
Check
speed 1/min : $<$ 360

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

rack travel mm : 11.60
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 107.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 14.10
Tolerance mm : \pm 0.50

Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000s. : ± 25.0

LOW IDLE

Rated speed rpm : 420

Rack travel in mm : 6.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 5.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98
Test oil : ISO 4113

Combination No. : 0 402 746 611

Injection pump
Pump designation : PES6P120A320RS7372
EP type number : 0 412 726 940

Governor
Governor design. : RQV250...1400PA1279K
Governor no. : 0 421 815 508

Cust. part No. : 3866783

Customer-spec. information
Customer : CDC
Motor : 6BTA
Power KW : 235.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

K17

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*MW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 13.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 186.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 7.00

Tolerance mm : + 0.20

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1455
guide sleeve
travel mm : 9.16
Tolerance mm : + 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.39
Tolerance mm : + 0.20

Rated speed rpm : 931
guide sleeve
travel mm : 5.67
Tolerance mm : + 0.25

Rated speed rpm : 480
guide sleeve
travel mm : 3.18
Tolerance mm : + 0.25

Rated speed rpm : 1860
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 186.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 121.5
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.80
Rated speed rpm : 1465
Tolerance 1/min : + 5

rack travel mm : 6.80
Rated speed rpm : 1580
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1725

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Control lever difference
Grad : 48.5
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 8.60

Testing:

Rated speed rpm : 300
rack travel mm : 7.00
Tolerance mm : \pm 0.20

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 13.45
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 13.20
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 13.00
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1400
Pressure hPa : 1200

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : 9.65
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1400
Pressure hPa : 620
rack travel mm : 12.30
Tolerance mm : \pm 0.20

Pressure hPa : 280
rack travel mm : 10.65
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 240

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 178.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 13.00
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 98.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 170.5
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.00
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.98
Test oil : ISO 4113

Combination No. : 9 400 030 734

Injection pump
Pump designation : PES4A95D320/3RS2880.
EP type number : 9 410 037 214

Governor
Governor design. : RSV500...1100AOC847R
Governor no. : 9 420 034 713

Cust. part No. : 3930153

Customer-spec. information
Customer : CDC
Motor : 4BT3.9
Power kW : 74.5

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 2.45
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 7.50
Tolerance : + 0.50
Check
tolerance *NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.55
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 107.5

| | | |
|-------------------|-----|------|
| Tolerance | | |
| cm3/1000 strokes | : + | 1.0 |
| <hr/> | | |
| Check tolerance | | |
| cm3/1000S. | : + | 3.0 |
| <hr/> | | |
| Speed | | |
| <hr/> | | |
| Tolerance | | |
| cm3/1000 strokes | : | 3.5 |
| <hr/> | | |
| Check tolerance | | |
| cm3/1000S. | : | 6.0 |
| <hr/> | | |
| 4 | | |
| Rated speed rpm | : | 500 |
| <hr/> | | |
| Rack travel in mm | : | 5.55 |
| Tolerance mm | : + | 0.10 |
| Del. quantity | | |
| cm3/1000 strokes | : | 20.5 |
| Tolerance | | |
| cm3/1000 strokes | : + | 2.0 |
| Check tolerance | | |
| cm3/1000S. | : + | 4.5 |
| Speed | | |
| Tolerance | | |
| cm3/1000 strokes | : | 3.5 |
| Check tolerance | | |
| cm3/1000S. | : | 5.5 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| control lever | |
| position degree | : - 3 |
| Rated speed rpm | : 800 |
| <hr/> | |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : + 0.20 |
| <hr/> | |
| governor spring | |
| pre-tension | |
| click setting x | : 3.25 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|------------------|---------|
| Rated speed rpm | : 1100 |
| Aneroid pressure | |
| hPa | : 1000 |
| Del. quantity | |
| cm3/1000 strokes | : 107.5 |

| | |
|------------------|---------|
| Tolerance | |
| cm3/1000 strokes | : + 1.0 |
| Check tolerance | |
| cm3/1000S. | : + 3.0 |
| Speed | |
| Tolerance | |
| cm3/1000 strokes | : 3.5 |
| Check tolerance | |
| cm3/1000S. | : 6.0 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 101.0 |
| tolerance degree | : + 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 11.50 |
| Rated speed rpm | : 1165 |
| Tolerance 1/min | : + 5 |
| <hr/> | |
| rack travel mm | : 6.00 |
| Rated speed rpm | : 1230 |
| Tolerance 1/min | : + 5 |

| | |
|-----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1375 |

LOW IDLE

| | |
|------------------|---------|
| control lever | |
| position degree | : 81.0 |
| tolerance degree | : + 4.0 |

| | |
|--------------------------|---------|
| Control lever difference | |
| Grad | : 20.0 |
| tolerance degree | : + 4.0 |

Setting point w/out bumper spring

| | |
|-----------------|----------|
| Rated speed rpm | : 500 |
| rack travel mm | : 5.05 |
| Tolerance mm | : + 0.10 |

| | |
|-----------------|-------|
| Rated speed rpm | : 100 |
|-----------------|-------|

| | |
|-------------|-----------|
| CRT mm min. | : > 19.00 |
|-------------|-----------|

Testing:

| | |
|-----------------|----------|
| Rated speed rpm | : 500 |
| rack travel mm | : 5.55 |
| Tolerance mm | : + 0.10 |

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.55
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.50
Tolerance mm : \pm 0.10

**ANEROID/ALTITUDE
COMPENSATOR TEST****SETTING**

Rated speed rpm : 750
Pressure hPa : 1000

Rated speed rpm : 750
Pressure hPa : -
rack travel mm : 12.80
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 750

Pressure hPa : 650
rack travel mm : 13.60
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 119.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 109.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 500

Rack travel in mm : 5.55
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98
Test oil : ISO 4113

Combination No. : 0 401 446 150

Injection pump
Pump designation : PE6R130/720RS1506
EP type number : 0 411 436 002

Governor
Governor design. : RQV250...1050R4K
Governor no. : 0 421 415 003

Cust. part No. : 865 020 P02 v. 08/94

Customer-spec. information
Customer : PENTA
Motor : TAMD163 P-A
Power KW : 553.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.70
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 450.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 13.0

Check tolerance
cm³/1000S. : 17.0

Rated speed rpm : 250

Rack travel in mm : 6.65
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 95.0

Tolerance
cm³/1000 strokes : ± 4.0

Check tolerance
cm³/1000S. : ± 7.0

Spread

Tolerance
cm³/1000 strokes : 11.0

Check tolerance
cm³/1000S. : 15.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1106
guide sleeve
travel mm : 9.18
Tolerance mm : ± 0.25

Rated speed rpm : 250
guide sleeve
travel mm : 1.26
Tolerance mm : ± 0.25

Rated speed rpm : 895

guide sleeve
travel mm : 6.42
Tolerance mm : ± 0.25

Rated speed rpm : 310
guide sleeve
travel mm : 2.00
Tolerance mm : ± 0.25

Rated speed rpm : 360
guide sleeve
travel mm : 2.41
Tolerance mm : ± 0.25

Rated speed rpm : 570
guide sleeve
travel mm : 3.54
Tolerance mm : ± 0.25

Rated speed rpm : 1360
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1205

Rack travel in mm : 11.00
Tolerance mm : ± 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 2200
Del. quantity
cm³/1000 strokes : 450.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spread
Tolerance
cm³/1000 strokes : 13.0
Check tolerance
cm³/1000S. : 17.0

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : ± 4.0

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.40
Rated speed rpm : 1105
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

control lever
position degree : 20.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150
CRT mm min. : $>$ 7.70

Testing:

Rated speed rpm : 250
rack travel mm : 6.65
Tolerance mm : \pm 0.10

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 850
rack travel mm : 13.20
Tolerance mm : \pm 0.15

Rated speed rpm : 975
rack travel mm : 14.30
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1050
Pressure hPa : 2200
rack travel mm : 14.40
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.70
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 1050
Pressure hPa : 1580
rack travel mm : 5.10
Tolerance mm : \pm 0.10

Pressure hPa : 400
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 2200
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 412.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 7.0
Spreed
Tolerance
cm³/1000 strokes : 15.0
Check tolerance
cm³/1000S. : 19.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 238.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.70
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 385.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 6.65
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : \pm 4.0
Check tolerance
cm³/1000S. : \pm 7.0
Spreed
Tolerance
cm³/1000 strokes : 11.0
Check tolerance
cm³/1000S. : 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.98
Test oil : ISO 4113

Combination No. : 0 401 846 994

Injection pump
Pump designation : PE6P110A320RS3374
EP type number : 0 411 816 800

Governor
Governor design. : RQV300...1100PA1182
Governor no. : 0 421 814 110

Cust. part No. : 11032709 P02 v.03.97

Customer spec. information

Customer : VCE
Motor : TD63KBE
Power KW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.15
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 625

Rack travel in mm : 14.35
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 153.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 5.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

**(B) SETTING OF INJECTION PUMP
WITH GOVERNOR**

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1172
guide sleeve
travel mm : 8.69
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.48

L01

Tolerance mm : \pm 0.20

Rated speed rpm : 822
guide sleeve
travel mm : 5.40
Tolerance mm : \pm 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.11
Tolerance mm : \pm 0.25

Rated speed rpm : 1390
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1240

Rack travel in mm : 11.30
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 625
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 153.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 49.0
tolerance degree : \pm 4.0

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 13.00

Rated speed rpm : 1160
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1275
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1330

LOW IDLE

control lever
position degree : 85.0
tolerance degree : + 4.0

control lever
position degree : 18.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : > 8.60

Testing:

Rated speed rpm : 300
rack travel mm : 5.90
Tolerance mm : + 0.10

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 625
rack travel mm : 14.35
Tolerance mm : + 0.05

Rated speed rpm : 1025
rack travel mm : 14.00
Tolerance mm : + 0.10

Rated speed rpm : 820
rack travel mm : 14.30
Tolerance mm : + 0.10

Rated speed rpm : 625
rack travel mm : 14.60
Tolerance mm : + 0.10

L02

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 625
Pressure hPa : 1500
rack travel mm : 14.35
Tolerance mm : + 0.05

Rated speed rpm : 625
Pressure hPa : -
rack travel mm : 11.15
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 625
Pressure hPa : 610
rack travel mm : 2.50
Tolerance mm : + 0.20

Pressure hPa : 90
rack travel mm : 0.25
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1025
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

rack travel mm : 14.30
Tolerance mm : + 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 625
Del. quantity
cm³/1000 strokes : 89.0

Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.20
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.90
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.98
Test oil : ISO 4113

Combination No. : 0 401 876 345

Injection pump
Pump designation : PE6P120B320RS3301
EP type number : 0 411 826 819

Governor
Governor design. : RSV250...1100POA656
Governor no. : 0 421 833 574

Cust. part No. : 3826519 P02 v. 12/96

Customer-spec. information
Customer : PENTA
Motor : TAMD 102 D
Power KW : 315.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Vibration
damper
(RoBo diaphragm) : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.30
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.20
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 280.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 250

Rack travel in mm : 6.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 24.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 2.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 280.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 48.0
tolerance degree : \pm 4.0

control lever
position degree : 98.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.20
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1230
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

control lever
position degree : 25.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250
rack travel mm : 5.70
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 250
rack travel mm : 6.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 395
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.20
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 1120
rack travel mm : 4.20
Tolerance mm : \pm 0.15

Pressure hPa : 160
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 303.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.00
Tolerance mm : \pm 0.50

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 6.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed

Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98
Test oil : ISO 4113

Combination No. : 0 401 876 761

Injection pump
Pump designation : PE6P120B320RS3206
EP type number : 0 411 826 820

Governor
Governor design. : RSV250...900P4A657
Governor no. : 0 421 833 575

Cust. part No. : 3826529 P01 v. 10/96

Customer-spec. information
Customer : VOLVO-PENTA
Motor : TAMD122 A
Power KW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration
damper
(RoBo diaphragm) : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 80
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.70
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.40
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 264.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 5.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 20.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 7.0

**(B) SETTING OF INJECTION PUMP
WITH GOVERNOR**

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

L09

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure

hPa : 1500

Del. quantity
cm³/1000 strokes : 264.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 55.0
tolerance degree : \pm 4.0

control lever
position degree : 105.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 10.40
Rated speed rpm : 960
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1000
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1130

rack travel mm : 4.00
Rated speed rpm : 1010
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 73.0

tolerance degree : + 4.0

control lever

position degree : 23.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

rack travel mm : 4.60

Tolerance mm : + 0.10

Testing:

Rated speed rpm : 250

rack travel mm : 5.10

Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 410

Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 11.40

Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 700

Pressure hPa : 1500

rack travel mm : 11.40

Tolerance mm : + 0.05

Rated speed rpm : 700

Pressure hPa : -

rack travel mm : 8.70

Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 700

Pressure hPa : 725

rack travel mm : 2.30

Tolerance mm : + 0.20

Pressure hPa : 240

rack travel mm : 0.25

Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

L10

Aneroid pressure

hPa : -

Rated speed rpm : 700

Del. quantity

cm³/1000 strokes : 178.0

Tolerance

cm³/1000 strokes : + 1.0

Check tolerance

cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 8.70

Tolerance mm : + 0.20

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.10

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 20.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000S. : + 6.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.98
Test oil : ISO 4113

Combination No. : 0 401 876 777

Injection pump
Pump designation : PE6P120B320RS3261
EP type number : 0 411 826 821

Governor
Governor design. : RSV250...1100POA655
Governor no. : 0 421 833 573

Cust. part No. : 3826513 P01 v.10.96

Customer-spec. information
Customer : PENTA
Motor : TAMD 102 A
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration
damper
(RoBo diaphragm) : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 100
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.15
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 260.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

L12

governor spring
pre-tension
click setting x : 2.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 260.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 47.0
tolerance degree : \pm 4.0

control lever
position degree : 97.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.10
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1210
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1220
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 73.0

tolerance degree : \pm 4.0

control lever

position degree : 23.0

tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

rack travel mm : 6.00

Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 250

rack travel mm : 6.50

Tolerance mm : \pm 0.10

rack travel mm : 2.00

Rated speed rpm : 400

Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 12.15

Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1500

rack travel mm : 12.15

Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 8.50

Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 900

rack travel mm : 3.20

Tolerance mm : \pm 0.15

Pressure hPa : 140

rack travel mm : 0.25

Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 700

Del. quantity

cm³/1000 strokes : 150.0

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 17.00

Tolerance mm : \pm 1.00

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 6.50

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 23.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Speed

Tolerance

cm³/1000 strokes : 5.0

Check tolerance

cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.98
Test oil : ISO 4113

Combination No. : 0 401 876 808

Injection pump
Pump designation : PEGP120A320RS3355
EP type number : 0 411 826 814

Governor
Governor design. : RSV300...1100P1A604
Governor no. : 0 421 833 485

Cust. part No. : 3825516 P03 v. 11/95

Customer spec. information
Customer : PENTA
Motor : TD1030ME
Power KW : 190.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 85
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 9.55
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.50
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 156.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.50

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 156.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 62.0
tolerance degree : \pm 4.0

control lever
position degree : 112.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.50
Rated speed rpm : 1135
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1190
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

control lever
position degree : 26.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
rack travel mm : 4.20
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 300
rack travel mm : 4.70
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.50
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 12.50
Tolerance mm : + 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.50
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.55
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 555
rack travel mm : 2.30
Tolerance mm : + 0.15

Pressure hPa : 140
rack travel mm : 0.25
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

L16

Aneroid pressure

hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 178.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 4.70
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98
Test oil : ISO 4113

Combination No. : 0 401 876 810

Injection pump
Pump designation : PE6P120A32ORS3359
EP type number : 0 411 826 815

Governor
Governor design. : RSV325...1200P1A615
Governor no. : 0 421 833 503

Cust. part No. : 3825515 P02 v. 10/95

Customer-spec. information
Customer : PENTA
Motor : TD 730ME
Power kW : 150.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 220
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.35
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 9.40
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.00
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 123.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 325

Rack travel in mm : 4.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : + 5.0

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 5.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 123.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 70.0
tolerance degree : + 4.0

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.00
Rated speed rpm : 1235
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1280
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 80.0
tolerance degree : + 4.0

control lever
position degree : 30.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 4.10
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 4.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 390
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.00
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 490
rack travel mm : 1.10
Tolerance mm : \pm 0.15

Pressure hPa : 290
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500

Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 141.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98
Test oil : ISO 4113

Combination No. : 0 402 046 861

Injection pump
Pump designation : PE6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325/1300PA1150
Governor no. : 0 421 801 716

Cust. part No. : 1284420/4

Customer-spec. information

Customer : DAF
Motor : NS156M
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

| | | |
|--|---|-------|
| Del. quantity cm ³ /1000 strokes | : | 144.0 |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | + 1.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | + 4.0 |
| <hr/> | | |
| Spreed | | |
| <hr/> | | |
| Tolerance cm ³ /1000 strokes | : | 4.0 |
| <hr/> | | |
| Check tolerance cm ³ /1000S. | : | 7.5 |
| <hr/> | | |

| | | |
|--|---|--------|
| Rated speed rpm | : | 325 |
| Rack travel in mm | : | 4.50 |
| Tolerance mm | : | + 0.10 |
| Del. quantity cm ³ /1000 strokes | : | 26.0 |
| Tolerance cm ³ /1000 strokes | : | + 2.5 |
| Check tolerance cm ³ /1000S. | : | + 5.0 |
| Spreed | | |
| Tolerance cm ³ /1000 strokes | : | 12.0 |
| Check tolerance cm ³ /1000S. | : | 15.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 1351 |
| guide sleeve travel mm | : | 6.37 |
| Tolerance mm | : | + 0.10 |
| <hr/> | | |
| Rated speed rpm | : | 325 |
| guide sleeve travel mm | : | 1.99 |
| Tolerance mm | : | + 0.10 |
| <hr/> | | |
| Rated speed rpm | : | 1300 |
| guide sleeve travel mm | : | 6.00 |
| Tolerance mm | : | + 0.10 |
| <hr/> | | |
| Rated speed rpm | : | 427 |
| guide sleeve travel mm | : | 3.54 |

| | | |
|---------------------------|---|--------|
| Tolerance mm | : | + 0.10 |
| <hr/> | | |
| Rated speed rpm | : | 590 |
| guide sleeve travel mm | : | 6.00 |
| Tolerance mm | : | + 0.10 |
| <hr/> | | |
| Rated speed rpm | : | 1570 |
| guide sleeve travel mm | : | 11.50 |
| Tolerance mm | : | + 0.50 |

GUIDE SLEEVE POSITION

| | | |
|----------------------------------|---|--------|
| control lever position degree | : | 109 |
| Rated speed rpm | : | 650 |
| <hr/> | | |
| Rack travel in mm | : | 20.00 |
| Tolerance mm | : | + 0.80 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|--|---|-------|
| Rated speed rpm | : | 1000 |
| Aneroid pressure hPa | : | 1000 |
| Del. quantity cm ³ /1000 strokes | : | 144.0 |
| Tolerance cm ³ /1000 strokes | : | + 1.0 |
| Check tolerance cm ³ /1000S. | : | + 4.0 |
| Spreed | | |
| Tolerance cm ³ /1000 strokes | : | 4.0 |
| Check tolerance cm ³ /1000S. | : | 7.5 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 93.0 |
| tolerance degree | : | + 4.0 |
| <hr/> | | |
| RATED SPEED | | |
| rack travel mm | : | 10.85 |
| Rated speed rpm | : | 1345 |
| Tolerance 1/min | : | + 5 |
| Check speed 1/min | : | + 10 |
| <hr/> | | |
| rack travel mm | : | 4.00 |
| Rated speed rpm | : | 1450 |
| Tolerance 1/min | : | + 15 |

Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : > 5.90

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 1300
rack travel mm : 11.85
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 600
Pressure hPa : -

L22

rack travel mm : 7.35
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : + 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 5.0

rack travel mm : 11.85
Tolerance mm : + 0.05

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : +- 5.0
Speed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98
Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump
Pump designation : PES6P110A320RS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQ325...1250PA1370
Governor no. : 0 421 801 828

Cust. part No. : 1305236

Customer-spec. information
Customer : DAF
Motor : NS177M
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

| | | |
|--|---|-------|
| Del. quantity cm ³ /1000 strokes | : | 149.5 |
| Tolerance cm ³ /1000 strokes | : | + 1.0 |
| Check tolerance cm ³ /1000S. | : | + 4.0 |
| Spreed | | |
| Tolerance cm ³ /1000 strokes | : | 4.0 |
| Check tolerance cm ³ /1000S. | : | 7.5 |

| | | |
|--|---|--------|
| Rated speed rpm | : | 325 |
| Rack travel in mm | : | 4.40 |
| Tolerance mm | : | + 0.10 |
| Del. quantity cm ³ /1000 strokes | : | 26.0 |
| Tolerance cm ³ /1000 strokes | : | + 3.0 |
| Check tolerance cm ³ /1000S. | : | + 6.0 |
| Spreed | | |
| Tolerance cm ³ /1000 strokes | : | 3.0 |
| Check tolerance cm ³ /1000S. | : | 12.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 1292 |
| guide sleeve travel mm | : | 6.37 |
| Tolerance mm | : | + 0.15 |
| Rated speed rpm | : | 325 |
| guide sleeve travel mm | : | 1.99 |
| Tolerance mm | : | + 0.20 |
| Rated speed rpm | : | 1000 |
| guide sleeve travel mm | : | 6.00 |
| Tolerance mm | : | + 0.10 |
| Rated speed rpm | : | 426 |

| | | |
|---------------------------|---|--------|
| guide sleeve travel mm | : | 3.48 |
| Tolerance mm | : | + 0.10 |

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 590 |
| guide sleeve travel mm | : | 6.00 |
| Tolerance mm | : | + 0.10 |

| | | |
|---------------------------|---|--------|
| Rated speed rpm | : | 1460 |
| guide sleeve travel mm | : | 11.50 |
| Tolerance mm | : | + 0.50 |

GUIDE SLEEVE POSITION

| | | |
|----------------------------------|---|-----|
| control lever position degree | : | 109 |
|----------------------------------|---|-----|

| | | |
|----------------------------------|---|-----|
| control lever position degree | : | 109 |
| Rated speed rpm | : | 600 |

| | | |
|-------------------|---|--------|
| Rack travel in mm | : | 20.00 |
| Tolerance mm | : | + 0.80 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | | |
|--|---|-------|
| Rated speed rpm | : | 1000 |
| Aneroid pressure hPa | : | 1500 |
| Del. quantity cm ³ /1000 strokes | : | 149.5 |
| Tolerance cm ³ /1000 strokes | : | + 1.0 |
| Check tolerance cm ³ /1000S. | : | + 4.0 |
| Spreed | | |
| Tolerance cm ³ /1000 strokes | : | 4.0 |
| Check tolerance cm ³ /1000S. | : | 7.5 |

CONTROL LEVER

| | | |
|----------------------------------|---|-------|
| control lever position degree | : | 97.0 |
| tolerance degree | : | + 4.0 |

| | | |
|----------------------|---|-------|
| RATED SPEED | | |
| rack travel mm | : | 11.25 |
| Rated speed rpm | : | 1290 |
| Tolerance 1/min | : | + 5 |
| Check speed 1/min | : | + 10 |

rack travel mm : 4.00
 Rated speed rpm : 1370
 Tolerance 1/min : + 15
 Check
 speed 1/min : + 20

 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 75.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

 CRT mm min. : > 6.00

Testing:

Rated speed rpm : 325
 rack travel mm : 4.40
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 415
 Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1000
 rack travel mm : 12.25
 Tolerance mm : + 0.05

Rated speed rpm : 1250
 rack travel mm : 12.25
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
 Pressure hPa : 1500
 rack travel mm : 12.25
 Tolerance mm : + 0.05

Rated speed rpm : 600

L26

Pressure hPa : -
 rack travel mm : 7.00
 Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 430
 rack travel mm : 10.90
 Tolerance mm : + 0.05

Pressure hPa : 220
 rack travel mm : 8.10
 Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 1000
 Del. quantity
 cm³/1000 strokes : 92.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
 Tolerance mm : + 0.10
 Del. quantity
 cm³/1000 strokes : 26.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0
 Speed
 Tolerance
 cm³/1000 strokes : 8.0
 Check tolerance
 cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.98
Test oil : ISO 4113
Combination No. : 0 402 076 821
Injection pump
Pump designation : PES6P120A720RS3340
EP type number : 0 412 026 773

Governor
Governor design. : RSV650...1050P8A566
: -6
Governor no. : 0 421 833 615

Cust. part No. :

Customer-spec. information
Customer : NH
Motor : EP 040 B
Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

L27

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Check
tolerance °NW : ± 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 13.35

| | |
|--|----------|
| Tolerance mm | : + 0.05 |
| Del. quantity cm ³ /1000 strokes | : 204.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 6.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

| | |
|--|----------|
| Rated speed rpm | : 650 |
| Rack travel in mm | : 4.70 |
| Tolerance mm | : + 0.10 |
| Del. quantity cm ³ /1000 strokes | : 23.0 |
| Tolerance cm ³ /1000 strokes | : + 3.0 |
| Check tolerance cm ³ /1000S. | : + 6.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

| | |
|---|----------|
| control lever position degree | : - 3 |
| Rated speed rpm | : 800 |
| Rack travel in mm | : 0.50 |
| Tolerance mm | : + 0.20 |
| governor spring pre-tension click setting x | : 2.00 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 1025 |
| Aneroid pressure hPa | : 1600 |
| Del. quantity cm ³ /1000 strokes | : 204.0 |
| Tolerance cm ³ /1000 strokes | : + 1.0 |
| Check tolerance cm ³ /1000S. | : + 6.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 90.0 |
| tolerance degree | : + 4.0 |

ASSEMBLY GOVERNOR SETTING

| | |
|-----------------|----------|
| Rated speed rpm | : 1067 |
| rack travel mm | : 12.30 |
| Rated speed rpm | : 1097 |
| Tolerance 1/min | : + 5 |
| rack travel mm | : 4.00 |
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |
| Rated speed rpm | : 1300 |

| | |
|-----------------|---------|
| Rated speed rpm | : 1068 |
| rack travel mm | : 12.30 |

| | |
|-----------------|--------|
| Rated speed rpm | : 1098 |
| Tolerance 1/min | : + 5 |
| rack travel mm | : 4.00 |

| | |
|----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |

| | |
|-----------------|---------|
| Rated speed rpm | : 1069 |
| rack travel mm | : 12.30 |

| | |
|-----------------|--------|
| Rated speed rpm | : 1099 |
| Tolerance 1/min | : + 5 |
| rack travel mm | : 4.00 |

| | |
|----------------|----------|
| rack travel mm | : 0.85 |
| Tolerance mm | : + 0.55 |

Rated speed rpm : 1070
rack travel mm : 12.30

Rated speed rpm : 1100
Tolerance 1/min : ± 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1071
rack travel mm : 12.30

Rated speed rpm : 1101
Tolerance 1/min : ± 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55

Rated speed rpm : 1072
rack travel mm : 12.30

Rated speed rpm : 1102
Tolerance 1/min : ± 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : ± 0.55

LOW IDLE

control lever
position degree : 73.0

Setting point w/out bumper spring

Rated speed rpm : 650
rack travel mm : 4.20
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 650
rack travel mm : 4.70
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1025
rack travel mm : 13.35
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 14.00
Tolerance mm : ± 0.10

M01

Rated speed rpm : 650
rack travel mm : 14.05
Tolerance mm : ± 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 14.00
Tolerance mm : ± 0.15

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : ± 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 980
rack travel mm : 12.25
Tolerance mm : ± 0.10

Start interlock

Rated speed rpm : > 100

Check
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 230.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0

rack travel mm : 14.05
Tolerance mm : ± 0.15

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 650
Rack travel in mm : 4.70
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.98
Test oil : ISO 4113

Combination No. : 0 402 646 617

Injection pump
Pump designation : PE6P130A320RS7282
EP type number : 0 412 636 829

Governor
Governor design. : RQV300...900PA1059
Governor no. : 0 421 314 049

Cust. part No. : 865851-P08 V.09.97

Customer-spec. information
Customer : PENTA
Motor : TAD 1230 P

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 8.30
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.55
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 349.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 928
guide sleeve
travel mm : 7.72
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.81
Tolerance mm : \pm 0.25

Rated speed rpm : 650
guide sleeve
travel mm : 5.16
Tolerance mm : \pm 0.25

M04

Rated speed rpm : 315
guide sleeve
travel mm : 1.98
Tolerance mm : \pm 0.25

Rated speed rpm : 365
guide sleeve
travel mm : 2.54
Tolerance mm : \pm 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 3.17
Tolerance mm : \pm 0.25

Rated speed rpm : 1210
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 980

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Arieroid pressure
hPa : 2000
Del. quantity
cm³/1000 strokes : 349.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 5.0
Spread
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : \pm 4.0

control lever
position degree : 117.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.50

Rated speed rpm : 915

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1000

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1100

LOW IDLE

control lever

position degree : 74.0

tolerance degree : + 4.0

control lever

position degree : 18.0

tolerance degree : + 4.0

Testing:

Rated speed rpm : 300

rack travel mm : 4.00

Tolerance mm : + 0.10

rack travel mm : > 5.60

Rated speed rpm : 200

Rated speed rpm : 365

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 11.55

Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 2000

rack travel mm : 11.55

Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : -

M05

rack travel mm : 8.30

Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1390

rack travel mm : 2.90

Tolerance mm : + 0.20

Pressure hPa : 640

rack travel mm : 0.25

Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 700

Del. quantity

cm³/1000 strokes : 230.0

Tolerance

cm³/1000 strokes : + 1.5

Check tolerance

cm³/1000s. : + 5.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.00

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 23.0

Tolerance

cm³/1000 strokes : + 3.0

Check tolerance

cm³/1000s. : + 6.0

Speed

Tolerance

cm³/1000 strokes : 7.0

Check tolerance

cm³/1000s. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.11.97
Test oil : ISO 4113

Combination No. : 0 402 646 623

Injection pump
Pump designation : PE6P120A320RS7283
: -10
EP type number : 0 412 626 918

Governor
Governor design. : RQV250...900PA1069
: -1
Governor no. : 0 421 814 070

Cust. part No. : 866141 P06 v. 11/97

Customer spec. information
Customer : PENTA
Motor : TAD 1030V

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 300
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.45
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 290.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 250

Rack travel in mm : 7.70
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 949
guide sleeve
travel mm : 7.39
Tolerance mm : ± 0.25

Rated speed rpm : 250

guide sleeve
travel mm : 1.12
Tolerance mm : ± 0.25

Rated speed rpm : 657
guide sleeve
travel mm : 5.07
Tolerance mm : ± 0.25

Rated speed rpm : 315
guide sleeve
travel mm : 1.98
Tolerance mm : ± 0.25

Rated speed rpm : 365
guide sleeve
travel mm : 2.63
Tolerance mm : ± 0.25

Rated speed rpm : 420
guide sleeve
travel mm : 3.17
Tolerance mm : ± 0.25

Rated speed rpm : 1290
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1150

Rack travel in mm : 9.00
Tolerance mm : ± 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 290.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 64.0
tolerance degree : \pm 4.0

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 12.45
Rated speed rpm : 935
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 74.0
tolerance degree : \pm 4.0

control lever
position degree : 24.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : $>$ 9.00

Testing:

Rated speed rpm : 250
rack travel mm : 7.70
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.45
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.45
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.00
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 200
rack travel mm : 10.30
Tolerance mm : \pm 0.10

Pressure hPa : 1090
rack travel mm : 13.15
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 7.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
ca3/1000s. : + 5.0
Spreed
Tolerance
ca3/1000 strokes : 7.0
Check tolerance
ca3/1000s. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98
Test oil : ISO 4113

Combination No. : 0 402 646 658

Injection pump
Pump designation : PE6F130A720RS7371
EP type number : 0 412 636 837

Governor
Governor design. : RQV250...900PA1215
Governor no. : 0 421 814 139

Cust. part No. : 3825482-P04 V.11/95

Customer-spec. information
Customer : PENTA
Motor : TAMD 163 A
Power KW : 405.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 60
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 7.60
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.20
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 377.0

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 9.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 959
guide sleeve
travel mm : 8.22
Tolerance mm : \pm 0.25

Rated speed rpm : 250
guide sleeve
travel mm : 1.12
Tolerance mm : \pm 0.25

Rated speed rpm : 315

guide sleeve
travel mm : 1.98
Tolerance mm : \pm 0.25

Rated speed rpm : 365
guide sleeve
travel mm : 2.47
Tolerance mm : \pm 0.25

Rated speed rpm : 650
guide sleeve
travel mm : 4.40
Tolerance mm : \pm 0.25

Rated speed rpm : 1160
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1030

Rack travel in mm : 11.00
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 377.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 9.0
Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 63.0
tolerance degree : \pm 4.0

control lever
position degree : 118.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.20
Rated speed rpm : 930
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1010
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

control lever
position degree : 15.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150
CRT mm min. : $>$ 6.50

Testing:

Rated speed rpm : 250
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1500
rack travel mm : 13.20
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.60
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 1000
rack travel mm : 5.10
Tolerance mm : \pm 0.20

Pressure hPa : 240
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 409.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 194.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000s. : \pm 5.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 25.0

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98
Test oil : ISO 4113

Combination No. : 0 402 646 962

Injection pump
Pump designation : PE6P130A720RS7137
EP type number : 0 412 636 806

Governor
Governor design. : RQ750PA865-2
Governor no. : 0 421 801 619

Cust. part No. : 864855-P04 v.10.94

Customer-spec. information
Customer : PENTA
Motor : TWD1620G

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.25
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 368.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.5 |
| Check tolerance cm ³ /1000S. | : ± 5.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

| | |
|--|----------|
| Rack travel in mm | : 3.90 |
| Tolerance mm | : ± 0.20 |
| Del. quantity cm ³ /1000 strokes | : 30.0 |
| Tolerance cm ³ /1000 strokes | : ± 3.0 |
| Check tolerance cm ³ /1000S. | : ± 5.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 8.0 |

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 700 |
| Aneroid pressure hPa | : - |
| Del. quantity cm ³ /1000 strokes | : 368.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.5 |
| Check tolerance cm ³ /1000S. | : ± 5.0 |
| Speed | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

CONTROL LEVER

| | |
|------------------|---------|
| control lever | |
| position degree | : 90.0 |
| tolerance degree | : ± 4.0 |

RATED SPEED

| | |
|-----------------|---------|
| rack travel mm | : 11.20 |
| Rated speed rpm | : 751 |
| Tolerance 1/min | : ± 3 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 781 |
| Tolerance 1/min | : ± 7 |

| | |
|-----------------|----------|
| rack travel mm | : 0.50 |
| Tolerance mm | : ± 0.50 |
| Rated speed rpm | : 850 |

ASSEMBLY GOVERNOR SETTING

| | |
|-----------------|---------|
| Rated speed rpm | : 748 |
| rack travel mm | : 11.20 |

| | |
|-----------------|--------|
| Rated speed rpm | : 779 |
| Tolerance 1/min | : ± 5 |
| rack travel mm | : 4.00 |

| | |
|-----------------|----------|
| rack travel mm | : 0.50 |
| Tolerance mm | : ± 0.50 |
| Rated speed rpm | : 850 |

| | |
|-----------------|---------|
| Rated speed rpm | : 749 |
| rack travel mm | : 11.20 |

| | |
|-----------------|--------|
| Rated speed rpm | : 780 |
| Tolerance 1/min | : ± 5 |
| rack travel mm | : 4.00 |

| | |
|-----------------|----------|
| rack travel mm | : 0.50 |
| Tolerance mm | : ± 0.50 |
| Rated speed rpm | : 850 |

| | |
|-----------------|---------|
| Rated speed rpm | : 750 |
| rack travel mm | : 11.20 |

| | |
|-----------------|--------|
| Rated speed rpm | : 781 |
| Tolerance 1/min | : ± 5 |
| rack travel mm | : 4.00 |

| | |
|-----------------|----------|
| rack travel mm | : 0.50 |
| Tolerance mm | : ± 0.50 |
| Rated speed rpm | : 850 |

| | |
|-----------------|-------|
| Rated speed rpm | : 751 |
|-----------------|-------|

rack travel mm : 11.20

Rated speed rpm : 782

Tolerance 1/min : \pm 5

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 850

Rated speed rpm : 752

rack travel mm : 11.20

Rated speed rpm : 783

Tolerance 1/min : \pm 5

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 850

Rated speed rpm : 753

rack travel mm : 11.20

Rated speed rpm : 784

Tolerance 1/min : \pm 5

rack travel mm : 4.00

rack travel mm : 0.50

Tolerance mm : \pm 0.50

Rated speed rpm : 850

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 12.25

Tolerance mm : \pm 0.05

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98
Test oil : ISO 4113

Combination No. : 0 402 676 821

Injection pump
Pump designation : PE6P120A320LS7854
EP type number : 0 412 626 872

Governor
Governor design. : RSV550...1050POA826
: -9
Governor no. : 0 421 333 452

Cust. part No. : 0250746302

Customer-spec. information
Customer : MB-NFZ
Motor : OM 441 LA
Power KW : 239.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 115
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

M18

Test lines : 1 680 750 075
Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-
: 1

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 13.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 224.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 3.90

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 224.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 88.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1075
rack travel mm : 12.60

Rated speed rpm : 1115
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1076
rack travel mm : 12.60

Rated speed rpm : 1116
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1077
rack travel mm : 12.60

Rated speed rpm : 1117
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1078
rack travel mm : 12.60

Rated speed rpm : 1118
Tolerance 1/min : + 4

rack travel mm : 4.00
rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

Rated speed rpm : 1079
rack travel mm : 12.60

Rated speed rpm : 1119
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

rack travel mm : 12.60

rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 450

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 550
rack travel mm : 3.90
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 565
Tolerance 1/min : + 20

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030
rack travel mm : 13.60
Tolerance mm : + 0.05

Rated speed rpm : 970
rack travel mm : 13.90
Tolerance mm : + 0.10

Rated speed rpm : 750
rack travel mm : 14.20
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
rack travel mm : 14.20
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 244.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 250.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000s. : + 19.0

LOW IDLE

Rated speed rpm : 550
Rack travel in mm : 3.90
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0
Speed

Tolerance
cm3/1000 strokes : 6.0
Check tolerance
cm3/1000s. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.98

Test oil : ISO 4113

Combination No. : 0 402 736 858

Injection pump

Pump designation : PES6P110A120RS7214

EP type number : 0 412 716 805

Governor

Governer design. : RQV350...1200PA964

: -28K

Governer no. : 0 421 815 428

Cust. part No. : 3282464

Customer-spec. information

Customer : CUMMINS

Motor : 6CTA-A

Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 120

Tolerance l/h : ± 10.0

Test nozzle holde assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.40

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.35
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 148.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 30.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200
guide sleeve
travel mm : 9.10
Tolerance mm : \pm 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 1.80
Tolerance mm : \pm 0.20

Rated speed rpm : 450
guide sleeve
travel mm : 3.30
Tolerance mm : \pm 0.20

Rated speed rpm : 700
guide sleeve
travel mm : 6.10
Tolerance mm : \pm 0.20

Rated speed rpm : 1400
guide sleeve
travel mm : 10.90
Tolerance mm : \pm 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1330

Rack travel in mm : 16.50
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 148.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 64.0
tolerance degree : \pm 4.0

control lever
position degree : 119.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.30
Rated speed rpm : 1245
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1385
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

control lever
position degree : 15.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : $>$ 7.20

Testing:

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 423

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 11.10
Tolerance mm : \pm 0.20

Rated speed rpm : 550
rack travel mm : 11.00
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1200

Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1200

Pressure hPa : 575
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 225
rack travel mm : 8.95
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 11.00
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 91.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 11.20
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98

Test oil : ISO 4113

Combination No. : 0 402 746 609A

Injection pump

Pump designation : PES6P130A720RS7411

EP type number : 0 412 736 838

Governor

Governer design. : RQ275/950PA1274

Governer no. : 0 421 801 807

Cust. part No. : 221 574

Customer-spec. information

Customer : RAEA

Motor : UTLL u. TLL206E2

Power KW : 206.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 160

Tolerance l/h : ± 20.0

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.50

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.60

Tolerance mm : ± 0.05

| | |
|--|---------|
| Del. quantity cm ³ /1000 strokes | : 246.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

| | |
|--|----------|
| Rated speed rpm | : 275 |
| Rack travel in mm | : 4.20 |
| Tolerance mm | : ± 0.10 |
| Del. quantity cm ³ /1000 strokes | : 24.0 |
| Tolerance cm ³ /1000 strokes | : ± 3.0 |
| Check tolerance cm ³ /1000S. | : ± 6.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 8.0 |
| Check tolerance cm ³ /1000S. | : 12.0 |

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

| | |
|---------------------------|----------|
| Rated speed rpm | : 1103 |
| guide sleeve travel mm | : 6.55 |
| Tolerance mm | : ± 0.15 |
| Rated speed rpm | : 275 |
| guide sleeve travel mm | : 2.06 |
| Tolerance mm | : ± 0.20 |
| Rated speed rpm | : 1050 |
| guide sleeve travel mm | : 6.00 |
| Tolerance mm | : ± 0.10 |
| Rated speed rpm | : 355 |

| | |
|---------------------------|----------|
| guide sleeve travel mm | : 4.25 |
| Tolerance mm | : ± 0.10 |

| | |
|---------------------------|----------|
| Rated speed rpm | : 450 |
| guide sleeve travel mm | : 6.00 |
| Tolerance mm | : ± 0.10 |

| | |
|---------------------------|----------|
| Rated speed rpm | : 1290 |
| guide sleeve travel mm | : 11.50 |
| Tolerance mm | : ± 0.50 |

GUIDE SLEEVE POSITION

| | |
|-------------------|----------|
| Rated speed rpm | : 1147 |
| Rack travel in mm | : 11.60 |
| Tolerance mm | : ± 1.30 |

FULL LOAD DELIVERY AT FULL LOAD STOP

| | |
|--|---------|
| Rated speed rpm | : 600 |
| Aneroid pressure hPa | : 1500 |
| Del. quantity cm ³ /1000 strokes | : 246.0 |
| Tolerance cm ³ /1000 strokes | : ± 1.0 |
| Check tolerance cm ³ /1000S. | : ± 4.0 |
| Spread | |
| Tolerance cm ³ /1000 strokes | : 5.0 |
| Check tolerance cm ³ /1000S. | : 9.0 |

CONTROL LEVER

| | |
|----------------------------------|---------|
| control lever position degree | : 33.0 |
| tolerance degree | : ± 4.0 |

| | |
|----------------------------------|---------|
| control lever position degree | : 94.0 |
| tolerance degree | : ± 4.0 |

| | |
|-----------------|---------|
| RATED SPEED | |
| rack travel mm | : 11.60 |
| Rated speed rpm | : 1095 |
| Tolerance 1/min | : ± 5 |

| | |
|-----------------|--------|
| rack travel mm | : 4.00 |
| Rated speed rpm | : 1180 |
| Tolerance 1/min | : ± 15 |

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1200

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

control lever
position degree : 11.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : $>$ 7.22

Testing:

Rated speed rpm : 275
rack travel mm : 4.20
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 346
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 600
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 12.60
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.60
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.20

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 260
rack travel mm : 9.20
Tolerance mm : \pm 0.15

Pressure hPa : 440
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $<$ 100
Rated speed rpm : $>$ 195

Check
speed 1/min : $<$ 80
Check
speed 1/min : $>$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 235.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000s. : + 24.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.20
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98

Test oil : ISO 4113

Combination No. : 0 402 746 637

Injection pump

Pump designation : PES6P120A320RS7449

EP type number : 0 412 726 974

Governor

Governer design. : RQ275/1050PA1372

Governer no. : 0 421 801 830

Cust. part No. : CCEP 5169- 66/253

Customer-spec. information

Customer : RENAULT V.I.

Motor : MI7R062045 B41

Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 320

Tolerance l/h : ± 20.0

Test nozzle holde assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.70

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.25

Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -1.45

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.50

Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 193.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 31.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

**(B) SETTING OF INJECTION PUMP
WITH GOVERNOR**

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1129
guide sleeve
travel mm : 6.37
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

Rated speed rpm : 1050

guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 388
guide sleeve
travel mm : 4.42
Tolerance mm : \pm 0.10

Rated speed rpm : 480
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1330
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 193.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 274.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1120
Tolerance 1/min : \pm 5

rack travel mm : -8.50
Rated speed rpm : 1235
Tolerance 1/min : + 15

rack travel mm : -12.00
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 252.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : > -5.00

Testing:

Rated speed rpm : 275
rack travel mm : -6.80
Tolerance mm : + 0.10

rack travel mm : -10.50
Rated speed rpm : 375
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.00
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

NO4

Pressure hPa : 320
rack travel mm : -0.85
Tolerance mm : + 0.15

Pressure hPa : 160
rack travel mm : -1.70
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 196.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -6.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000s. : \pm 5.0

Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98
Test oil : ISO 4113

Combination No. : 0 402 746 639

Injection pump
Pump designation : PES6P120A32ORS7359
: -3
EP type number : 0 412 726 975

Governor
Governor design. : RQ275/1050PA1217-2
Governor no. : 0 421 801 832

Cust. part No. : CCEP 5172 66-255

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDRO62045 J41
Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 270
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

N06

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.80
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance *NW : + 0.75

Start of delivery mark

*NW after s.o.d. : -0.45
Tolerance : + 0.50
Check
tolerance *NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.40

Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 600

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1129
guide sleeve
travel mm : 6.36
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

N07

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 400
guide sleeve
travel mm : 4.82
Tolerance mm : \pm 0.10

Rated speed rpm : 480
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1330
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 278.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00

Rated speed rpm : 1115
Tolerance 1/min : + 15

rack travel mm : -9.40
Rated speed rpm : 1240
Tolerance 1/min : + 15

rack travel mm : -12.90
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 256.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : > -5.30

Testing:

Rated speed rpm : 275
rack travel mm : -7.50
Tolerance mm : + 0.10

rack travel mm : -11.40
Rated speed rpm : 375
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : + 0.05

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.85
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 520
rack travel mm : -0.60
Tolerance mm : + 0.15

Pressure hPa : 240
rack travel mm : -2.20
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 293.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -7.50

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.02.98
Test oil : ISO 4113
Combination No. : 0 402 746 655
Injection pump
Pump designation : PES6P120A320RS7343
EP type number : 0 412 726 915
Governor
Governor design. : RQV300...1000PA1160
: -1K
Governor no. : 0 421 815 559
Cust. part No. : 5168 66-250

Customer spec. information
Customer : RENAULT V.I.
Motor : MIDR 062356 B41
Power KW : 288.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 071
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

N10

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 11.00
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
°NW after s.o.d. : -0.40
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Barrel no. : 1
Beginning of delivery difference
betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference °CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 356.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.90
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 36.0

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1113
guide sleeve
travel mm : 8.82
Tolerance mm : ± 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.29

Tolerance mm : ± 0.20

Rated speed rpm : 827
guide sleeve
travel mm : 5.96
Tolerance mm : ± 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.66
Tolerance mm : ± 0.25

Rated speed rpm : 1440
guide sleeve
travel mm : 15.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1275

Rack travel in mm : 12.00
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 356.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1100
Tolerance 1/min : ± 5

rack travel mm : -9.00

Rated speed rpm : 1225
Tolerance 1/min : \pm 15

rack travel mm : -12.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 252.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $>$ -6.90

Testing:

Rated speed rpm : 300
rack travel mm : -7.90
Tolerance mm : \pm 0.10

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.65
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 0.10
Tolerance mm : \pm 0.15

Rated speed rpm : 350
rack travel mm : -1.75
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -4.00

Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 320
rack travel mm : -2.90
Tolerance mm : \pm 0.15

Pressure hPa : 520
rack travel mm : -1.80
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 381.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 0.10
Tolerance mm : \pm 0.15

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25

Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -7.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 36.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.98
Test oil : ISO 4113

Combination No. : 0 402 846 076

Injection pump
Pump designation : PE6P120A320RS8043
EP type number : 0 412 826 035

Governor
Governor design. : RQV300...1100PA1248
Governor no. : 0 421 814 165

Cust. part No. : 11031330
: -P03 v.12.97

Customer-spec. information
Customer : VCE
Motor : TD 103 KBE
Power KW : 216.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 150
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 103

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

N14

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.40
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 330

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 29.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1140
guide sleeve
travel mm : 7.71
Tolerance mm : \pm 0.15

Rated speed rpm : 330
guide sleeve
travel mm : 2.10

N15

Tolerance mm : \pm 0.20

Rated speed rpm : 1080
guide sleeve
travel mm : 6.80
Tolerance mm : \pm 0.25

Rated speed rpm : 520
guide sleeve
travel mm : 4.67
Tolerance mm : \pm 0.25

Rated speed rpm : 1370
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1240

Rack travel in mm : 11.30
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 270.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 60.0
tolerance degree : \pm 4.0

control lever
position degree : 115.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.40

Rated speed rpm : 1130
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1220
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1275

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

control lever
position degree : 14.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 230

CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 330
rack travel mm : 4.00
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 12.40
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.70

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550
rack travel mm : 2.20
Tolerance mm : \pm 0.20

Pressure hPa : 230
rack travel mm : 0.25
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -

Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 202.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

LOW IDLE

Rated speed rpm : 330

Rack travel in mm : 4.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 29.0

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.05.96
Test oil : ISO 4113
Combination No. : 0 403 446 302
Injection pump
Pump designation : PES6MW100/720RS1131
EP type number : 0 413 406 123
Governor
Governor design. : RQV300...1300MW50
: -24
Governor no. : 0 420 083 270
Cust. part No. : 0220745202

Customer-spec. information
Customer : MB-NFZ
Motor : OM 366 A
Power KW : 121.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 101
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 715 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 10.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 89.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 6.40
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1354
guide sleeve
travel mm : 8.64
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.37
Tolerance mm : + 0.20

Rated speed rpm : 885
guide sleeve
travel mm : 5.01
Tolerance mm : + 0.25

Rated speed rpm : 490
guide sleeve
travel mm : 2.86
Tolerance mm : + 0.25

Rated speed rpm : 1610
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 113
Rated speed rpm : 1370

Rack travel in mm : 10.00
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 89.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.95
Rated speed rpm : 1345
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1440
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 79.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.40
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 10.95
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 11.20
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 300
rack travel mm : 1.35
Tolerance mm : \pm 0.15

Pressure hPa : 200
rack travel mm : 0.55
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 85.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 11.20
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 48.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 6.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000S. : + 4.5
Spreed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.97
Test oil : ISO 4113

Combination No. : 9 400 087 498

Injection pump
Pump designation : PES6P120A120RS3344
EP type number : 9 400 087 090

Governor
Governor design. : RQV350...1100PA1216
Governor no. : 9 420 080 380

Cust. part No. : 3355978

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTAA - 250
Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 3.0

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 15.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50
Tolerance : ± 0.10

Check
tolerance °NW : ± 0.23

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 184.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 44.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 650
guide sleeve

travel mm : 5.55
Tolerance mm : ± 0.25

Rated speed rpm : 1150

guide sleeve
travel mm : 8.40
Tolerance mm : ± 0.10

Rated speed rpm : 350

guide sleeve
travel mm : 1.55
Tolerance mm : ± 0.25

Rated speed rpm : 500

guide sleeve
travel mm : 4.05

Tolerance mm : ± 0.25

Rated speed rpm : 1400

guide sleeve
travel mm : 10.55

Tolerance mm : ± 0.25

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1150

Rack travel in mm : 16.50

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 184.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 63.0

tolerance degree : ± 4.0

control lever

position degree : 117.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.50

Rated speed rpm : 1155

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1350

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 69.0
tolerance degree : \pm 4.0

control lever
position degree : 14.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : $>$ 9.50

Testing:

Rated speed rpm : 325
rack travel mm : 6.40
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 14.55
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 14.55
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 14.55
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 680
rack travel mm : 0.85

N23

Tolerance mm : \pm 0.15

Pressure hPa : 530
rack travel mm : 0.30
Tolerance mm : \pm 0.10

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 255

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 275

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 184.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.40

Tolerance mm : \pm 0.10

Del. quantity

cm³/1000 strokes : 44.0

Tolerance

cm³/1000 strokes : \pm 3.0

Check tolerance

cm³/1000S. : \pm 6.0

Speed

Tolerance

cm³/1000 strokes : 8.0

Check tolerance

cm³/1000S. : 12.0

End of test specification sheet